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June 2010

AUSTRALIAN PERSONAL



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## TOP iPad APPS

The first iPad apps have hit iTunes and we've been furiously downloading them to find the 'must have' apps for you!





# on the dvd

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## CLEAN UP YOUR PC!

Ashampoo Uninstaller 2010 gets rid of hard-to-remove programs that clog up your PC.

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## 3 PLAYABLE DEMOS

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**ACHTUNG PANZER:**  
**KHARKOV 1943**



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# editorial

TONY SARNO



## A BUNCH OF NEW HDTV TECHNOLOGIES ARE AGAIN TRANSFORMING SPORT

**I** once used to think that TVs belonged to the same category of technology as washing machines and microwaves. For a computer geek, there wasn't much in them to get fascinated about. But things have changed dramatically, to the point where even we struggle to keep up. The reason, of course, is that computer technology is infiltrating TV sets and making them suddenly interesting.

Several HDTVs now come with internet feeds and, with several ISPs setting up video streaming divisions, you can see where that's going. Look S-D years down the track when the national broadband network is up and running with its 100Mbps connections and Foxtel will have not one but dozens of competitors.

Then there's the arrival of 3D. When I saw the Samsung 3D TV in our Labs I was blown away by the promise of the tech. Yes, many of the characters in the HDTV DVD playing on it had slight ghosting and shimmering, but it was 3D and the good parts of the picture were

spectacular. Even though APC's technical editor disagreed with me (Nick tends to take a more rigorously scientific, if not anal, approach to assessing technology and rarely believes in magic) it was a WOW moment for me, and reminded me of one of my earliest memories, when my dad took me to Roselands shopping centre in Sydney to buy our first colour TV. I still recall what was on telly that day and it sends shivers down my spine — the red splotches on a batsman who'd been flattened by a Jeff Thomson bouncer. Sport suddenly became great televised theatre, and I was sold on colour TVs. Now, a bunch of new HDTV technologies are again transforming sport, starting with the astonishingly high quality of World Cup soccer HD broadcasts that we can expect on the latest HDTVs and Australia's first 3D broadcast — the State of Origin rugby league matches between Queensland and NSW — by Channel Nine. In our cover story on HDTVs, we pick the best TVs for watching sport — but as the writer Jenneth Orantia points out, if a TV is good at sport, it's good at anything.

[tsarno@cpmagazines.com.au](mailto:tsarno@cpmagazines.com.au)

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### APC JUNE AWARDS



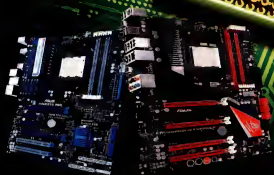
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# technotes

THE NEW, THE NEWS & THE QUIRKY VIEWS



**HOT PRODUCT**

## Creating 3D the affordable way

You don't need two cameras and expensive software to make 3D movies.

Avatar's success has many consumers wondering how they can create 3D movies right now. You could try a DIY solution, futzing around with two cameras on a tripod, or you can buy a Fujifilm FinePix REAL 3D W1 compact (\$899).

The first widely available 3D consumer camera, the REAL 3D W1, comes with two lenses and a 3D chip that can synchronise two images into a 3D image.

In camera mode, the REAL 3D W1 has a 3x optical zoom and shoots 1D-megapixel 3D images. In movie mode, it creates 3D movies at 640 x 480 pixel resolution, the length dependent

on how big a storage card you use. Both photos and movies are viewable through a special 3D viewer that costs another \$699. If you want a specialist 3D camcorder, Panasonic and Sony have already announced 3D models, but prices are stratospheric, with the Panasonic expected to cost more than \$20,000.

And what if you want to convert your old movies and photos to 3D? CyberLink Power2Go 1D Ultra 3D software (US\$99.95) could be the answer. It aims to transform your DVDs into an all-out 3D experience. All you do is insert a DVD, click the interface's '3D' button, select the depth

of field you'd like and choose your display system: TrueTheater 3D will do the rest. The results are, as you'd expect, variable. Take a rough old 2D movie (we tried a Rolling Stones concert) and things go wrong: we found that occasionally a guitar appeared to pop out of the screen. So don't expect your old DVD collection to be transformed into an Avatar-style 3D spectacular. You'll also need a solid dual-core processor and a modern graphics card — an ATI Radeon HD2400 or an NVIDIA GeForce 8800GT are the minimum. For 3D playback you'll also need a 3D display and some 3D glasses.



## Beauty Business

This a projector for purists. Rather than trying to turn the VPL-MX25 into something that you can sneak home and watch HD movies on, Sony has stuck resolutely to the business theme with its top-of-the-range business projector but improved the fundamentals. Resolution is not HD at 1,024 x 768, there is no digital output (HDMI or DVI) and it costs \$3,549. But with 2,500 lumens on tap, this 3LCD projector pretty much lit up the Labs with our PowerPoint presentation. It was incredibly easy to set up and has a superb auto-focus feature. In other words, it's light, preses look good and anyone can work it. That's what a business projector is all about.



## AUSSIE TABLET

Just as HP and Microsoft quietly went back to the drawing board last month with their tablet projects to try and come up with better competitors for the iPad, Sydney-based Hugo Ortega was selling his own iPad competitor, the Tega. What's astonishing is that Ortega himself designed it, in partnership with a Chinese supplier. Ortega runs tablet reseller Tegatech, and his Tega is what netbooks would have looked like if they'd been designed as tablets. It has a 10.2in screen, an Intel Atom N270 Processor, 160GB HDD, 1GB RAM and 802.11 a/b/g Wi-Fi — classic netbook specs. It also comes with a built-in HSDPA modem. It's no iPad, but it wasn't meant to be, says Ortega. For \$1,145 you get a true multi-function computer, with some reasonable touch navigation thanks to the touchscreen and Windows 7. As Ortega says: "Ultimately this is Australia's first built tablet PC. This is not a portal to dedicated media channels, but a fully functioning PC able to interact and expand as per the user's requirements."

# GAMING DEATH MATCH

ASUS takes aim at Alienware.

We love the Alienware brand and the design style that defines its gaming notebooks, but we have a sneaking suspicion that Dell is maximising returns on the name as much as the specs. When it comes to performance for the dollar, gamers are being won over by the more stable-looking ASUS ROG G73Jh. The ASUS is \$100 more expensive, at \$2,699 compared to \$2,599 for the base model top-of-the-range Alienware M17x and has the same Intel Core i7 i7-720QM, ATI 5870 graphics card and 17in screen, but if you customise the Alienware machine to the G73Jh specs, it ends up costing nearly \$800 more. That's because the ASUS comes with two 500GB hard drives versus one 640GB drive on the Dell, and with a seriously performance-enhancing 8GB of DDR3 RAM versus the Dell's 4GB, not to mention a Blu-ray/DVD drive versus a DVD drive only.

**BRING IT ON**  
Dell's gaming brand, Alienware, is beginning to see some competition from ASUS.







# ATTACK OF THE CLONES

Copies of the iPhone and other Mac products are so realistic it's hard to tell them apart — until you find Windows on them. **David Flynn** reports.

**P**icture an iPhone with an FM radio, a removable battery, a microSD card slot and room for two SIM cards. A MacBook Air dressed in chic cafe brown or Ferrari red, sporting inbuilt 3G plus two USB ports and an Ethernet jack. An iPad running Google's open Android platform instead of Apple's fenced-in OS X.

This isn't some alternative universe where Apple turned left instead of right. I'm standing in the middle of a busy Chinese IT mall — part shopping centre, part mecca for the digerati and the hackers — surrounded by rows of knock-off Apple kit.

Some are outright copies. Others are 'inspired by Apple', where the company's hero products provide a familiar starting point for adding features and toying with form factors.

And while they all carry the desirable Apple logo, they use very different components inside and certainly don't have the premium price tag attached.

The Android-powered iPad has a 600MHz ARM processor compared to Apple's 1GHz A4 engine, and the touchscreen is less bright

and responsive than the real deal — but it can be mine for just under \$200. [A Windows version built on Intel's N270 1.6GHz Atom chip and with three USB ports costs \$450.]

The MacBook Air also runs an Atom chip; in fact it's a netbook shoehorned into Apple's stylishly slim chassis. Available with Windows XP or a 'hackintosh' Mac OS X 10.6, it's also got netbook pricing: allow \$300-\$400 depending on if you want an 11in or 13in screen.

I'm tempted by a \$60 pint-sized 'iPhone Mini' with a 2.4in screen but I settle on a standard iPhone clone. It lists at \$200 but after a few minutes of to-and-fro haggling I shake hands with the storeholder at \$40. After all, it's nothing like a real iPhone — it's running Windows CE under an iPhone-esque skin.

Welcome to the weird world of 'shanzhai', where Chinese factories churn out low-cost copies of popular mobile phones, notebooks, cameras and MP3 players.

Shanzhai began as a way to supply China's domestic market with coveted Western brands, says Timothy Brown, whose Shanzhai.com site tracks the products and trends of China's vibrant shanzhai tech culture.

"People living in rural China or even outside some of the major population centres like Beijing or Shanghai still want to have access to branded products, it's just not available to them," Brown explains. "Even big companies like Apple and Nokia have a very limited reach and retail presence in China."

The shanzhai companies fill that gap as well as ensuring their copycat kit is priced within reach of the Chinese mass market.

Shanzhai kit is commonly found in Hong Kong's massive Sham Shui Po market and Mongkok's 'Gadget Street' through to the seven-floor Silk Market in Beijing, but the industry's epicentre is the Chinese boomtown of Shenzhen. This is the home to most of the shanzhai manufacturers as well as the four-block radius of Shenzhen's massive Huaqiangbei electronics market.

Shanzhai isn't only about aping Apple — you'll also find plenty of Nokia knock-offs alongside HTC and BlackBerry devices. But Apple's gear has immense appeal to buyers and budget-price OEMs compared to more commodity-based Windows PCs (although we spied shanzhai versions of Dell's slim Adamo).



#### JUDGED BY ITS COVER

It may look like an iPhone, but that's where the similarities stop. Inside are specs well below what Apple uses.

So if imitation is the sincerest form of flattery, Steve Jobs and his design guru Jonathan Ive must be blushing up a storm. Brown believes Apple's strong appeal throughout China is one rather ironic reason why Cupertino hasn't sent an army of lawyers marching into the markets.

"Apple has only one retail store in all of China, they've got very limited reach and advertising spend — so how else will Apple get its brand developed in a country as huge as China without the shanzai to seed the market with Apple lookalike products and spread Apple's branding for them? Why would they want to kill their unpaid marketing department?"

"Apple will push more aggressively into China later along in the cycle of economic development when more people can afford to buy their products," Brown predicts, "and that's when Apple might also get more aggressive legally against the shanzai."

Yet unlike the sweatshops, which turn out counterfeit bags and watches, the shanzai prefer to add their own unique touches to Apple's iconic designs. That's how the minimalist

MacBook Air morphed into a more fully-featured netbook with a removable battery and a range of screen sizes.

But cutting costs also means cutting corners. Shanzai's Air-inspired models eschew Apple's unibody aluminum chassis for plastic panels, and Brown highlights the display and battery as a clone's major weaknesses. Some models struggle to get past two hours between recharges.

"The battery is an easy place for manufacturers to cheap out and buy a lower-quality component, because a customer isn't going to spend four hours standing in the shop to find out if the notebook's really got a four-hour battery life like the spec sheet says."

"There's also a large variety in screen quality and a lot of the cheaper screens also suck more battery life."

All the same, the low price and standardized netbook platform makes them popular with a lot of "tinkerers and enthusiasts who like to tool around with them," Brown says, "and make them what they think a MacBook Air should be." **ENTRE**

## HANDS ON WITH AN IPHONE CLONE

Bootleg iPhones abound in the shanzai scene with dozens of models to choose from. Ours cost \$40 and, like almost all the iClones, it runs Windows CE hidden beneath an iPhone-style skin.

— But there's only so much life stick you can put on a pig. Fonts and images on the dim 3in screen are jagged and the UI is laggy and unresponsive — a fact not helped by the use of a resistive touchscreen like you'd find on an old PDA instead of the capacitive display of a multitouch smartphone. More often than not the supplied stylus works better than your fingers — especially when setting spin-based controls like the time and date, which tend to jump and stutter like a badly rigged chocolate wheel.

But this is what most knock-off products are all about — it's the look rather than the reality: perception over practicality.

After all, **iSuppli.com** estimates the bill of materials and manufacturing cost of the iPhone 3GS as \$195 — that's five times the street price to buy our iClone, which probably cost less than \$20 to make.

In this price-sensitive market the shanzai cut every possible corner. The buttons and casework are wonky and there's no built-in memory; the only way to get the 16GB declared on the device's back panel is to insert a 16GB microSD card.

There's not even a 3G radio. This is a GSM-only phone, although that's fine if all you do is talk, text and play music or video clips.

To get music and videos onto the iClone you hook it up to your PC or Mac via a USB cable and drop the files onto the device's microSD card.

Sure, it's nothing like an iPhone beyond the first glance. But for \$40 it's a wickedly cool piece of tourist tchotchke.





## REAL RACING HD

The iPad packs a surprising amount of graphics and CPU power in the Apple A4 chip, with full OpenGL ES supported, and game makers have jumped on board with games that have some spectacular 3D graphics. Real Racing HD from independent developer Firemint (maker of the popular iPhone game Air Traffic Control) really satisfies with its gameplay. The accelerometer-based control is surprisingly easy to use, and if you hold it relatively close to your face, well, who needs to drop five grand on a 50in TV to get immersive gameplay?

# THE 20 BEST APPS FOR iPad

The first couple of thousand iPad apps have hit iTunes, and **Dan Warne** has been furiously downloading them to find the 'must have' ones.

**T**here's no doubt that the best is yet to come with the iPad — there's only 1,500 or so applications so far, compared to the tens of thousands (or is that hundreds of thousands by now) of apps available for iPhone. However, even in the early batch, there are some fantastic apps that every new iPad owner should know about. Here's our top 20 favourites that we've used so far!

Note, we have used US pricing in this article, because at the time of writing, iPad apps were not available in the Australian iTunes store (as the iPad hadn't been officially released in Australia yet).

## IPASSWORD

You'll never again be stuck for a web site username/password on your iPad with 1Password. It's a hugely popular password management utility on Mac, and has just made it to Windows as a beta. It also saves your delivery addresses and credit card details for easy form filling. The 1Password database is stored in a heavily encrypted file and can sync between PCs and Macs over Wi-Fi.

**\$6.99**  
US Dollars

## IM+

The extra screen space of the iPad really comes in handy for instant messaging, with the ability to view your contact list down the left side, and chats on the right side of the screen. IM+ supports every major chat network: Skype, AOL, MSN/Windows Live, Twitter, Facebook, Yahoo!, Google Talk, Jabber, ICQ and MySpace. It also supports Apple Push Notifications so even if you don't have the app open, people will be able to send you a chat message.

**\$9.99**  
US Dollars

## TWEETDECK

Tweetdeck for iPad is a remarkably good Twitter app that retains most of the functionality of the full desktop version — the ability to monitor multiple accounts on both Twitter and Facebook, and multiple columns for different things — tweets mentioning you, auto-refreshing topic-based searches, and so on. It doesn't have push notifications to alert you when the app is closed, but the developers are promising to add that soon.

**FREE**

## EVERNOTE

The key to making the most of the iPad is to use cloud apps as much as possible between your main PC and the iPad, eliminating the need to manually sync via USB. Evernote should be a key part of that strategy — it's a fantastic service for storing your disparate bits of information including text, voice recordings, and pictures and PDFs. All of the content is indexed by Evernote back on its web servers — it even detects text in your photos.

**FREE**

## LOGMEIN IGNITION

This app is distinctly pricey, but at the time of writing, it was the only one available for iPad that lets you log into your PC or Mac remotely without needing to remember IP addresses and so on. (There's a TeamViewer app for iPhone that's free but it hasn't yet been upgraded for iPad.) You just log in to your LogMeIn account on the iPad, and all the computers you've installed the LogMeIn Free software onto are listed. Remote control works well, thanks to some very Apple-y control innovations.

**\$30**  
US Dollars

**FREE**

## MOCHA VNC LITE

Connect to and control PCs and Macs on your home LAN using the age-old VNC screen sharing protocol (Mac OS X has VNC built in, and there are umpteen freeware VNC server apps for Windows). It can auto-detect servers on the network so you don't have to figure out their IP address, and once connected to a PC or Mac, has pinch-to-zoom like LogMeIn. One neat-o feature is to use the 3-axis accelerometer in the iPad to pan around the screen, rather than sliding with your finger. This works surprisingly well in practice, though of course suffers from accidental sliding as you tilt the device for other reasons.

## GQ

Whether or not you care about men's fashion and style — cufflinks, expensive watches, hair products and the like (we certainly don't). *GQ* magazine on the iPad is well worth checking out, as it's a good implementation of a magazine on the iPad. It keeps all your editions within a single app, rather than requiring a separate app download for each magazine; preserves the page layouts of the magazine while making it easy to zoom in on the text and pics; and most importantly, the whole app is fast and responsive. Also check out *Time* magazine, which has done a great job of preserving the typography and design of the magazine, while freeing articles from the limitations of A4 page sizes.

**\$1.99**  
US Dollars





## INSTAPAPER PRO

This app has a built-in web browser that lets you save pages for reading later, like when you're on a train or plane and there's no Wi-Fi. Viewing web pages offline is actually surprisingly difficult to do reliably in browsers, and Instapaper Pro makes it possible to save a bunch of webpages with useful information and then work on a university or work assignment that draws from the info on those pages without internet access, for example.

**\$4.99**  
US Dollars



## KINDLE FOR IPAD

Apple's iBooks store is nice-looking and all, but it only has 30,000 books available, and an awful lot of them are out-of-print copyright-free titles. Amazon's Kindle app, on the other hand, offers 370,000 titles to Australian customers. Buying books isn't as nice as iBooks — you get booted out of the app and into the Amazon.com web site in Mobile Safari, but you can't beat the selection of books available. Unlike the "real" eInk-screen Kindle, the Kindle app for iPad displays colour images in books, not just greyscale.



**\$9.99**  
US Dollars

## AIRSHARING HD

If you have a bunch of, um, home movies encoded as DivX/Xvid, or MKV, you'll probably have discovered that converting them into MPEG-4 as required by Apple for playback on iPad is a tediously slow process. Airsharing HD makes it possible to stream them directly from your PC or Mac to your iPad over Wi-Fi, or even 3G (when 3G iPads are available). You just have to install a small server app on your PC/Mac and your iPad will then be able to browse your video library. The Airsharing server handles the conversion of the videos (yes, even Flash videos that the iPad would otherwise be completely allergic to). We were skeptical about whether this would work, as streaming video has a rich heritage of being buggy and glitchy. However, we were able to watch a whole episode of *Dexter*... er, a home movie in it glitch-free, streaming over Wi-Fi.

## GOODREADER

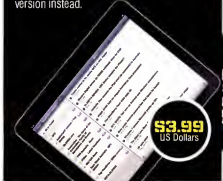
Despite the iPad's impressive credentials when it comes to viewing web pages, videos and music, it is fairly weak when it comes to reading documents (there's an inbuilt PDF reader capability, but has some annoying limitations such as the inability to click links in a PDF). The unbelievably cheap GoodReader makes it easy to view and sync documents to your iPad. You can access files on LAN servers via Wi-Fi, or make your iPad a LAN server itself so you can copy stuff to it over Wi-Fi from other computers for offline access later. It can also access files stored on a large number of different online file sharing/syncing services, FTP servers and IMAP/POP3 mail servers. You can view large PDF files, high-res images, Microsoft Office files, HTML and Safari WebArchives, and more.

**\$0.99**  
US Dollars



## FEEDDLER RSS

If you're not already using Google Reader to aggregate all your tech news RSS feeds into one place, you should be. Trouble is, the Google Reader interface doesn't work that well in mobile web browsers. In the meantime, there are apps like FeederRSS that provide a tasty iPad-native interface for Google Reader and still offer the benefits of syncing the stories you've read with Google so they won't pop up in Google Reader when you log in on other devices. The Pro version for US\$3.99 does bulk story sync with Google, so you can read RSS feeds while offline. If you only want to read them when you have internet access, you can get the free version instead.



**\$3.99**  
US Dollars



**\$6.99**  
US Dollars

## WUNDER RADIO

We can't help thinking that this internet radio app is what broadcast digital radio could have been if broadcasters were a bit more ambitious. It locates your position via GPS (or Skyhook Wi-Fi triangulation) and lists the radio stations in your city, making it a cinch to find your local stations — something that's always been a pain for internet radio apps. It deciphers streams in all the formats that would normally make your iPod come out in a rash, including RealAudio and Windows Media Audio (as well as the more iPod-friendly MP3 format). It'll be even better with iPhone OS 4, which will allow apps to play audio in the background (currently, if you switch to any other app, the radio stops).



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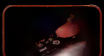
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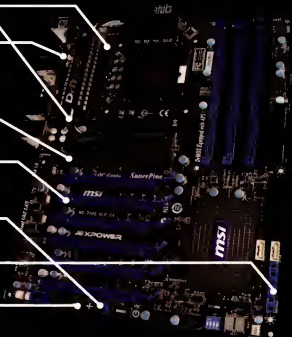
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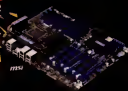
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au.msi.com



**FREE**

## IMDB

There's a few sites on the Internet that are just amazingly vast databases of information. The Internet Movie Database (IMDB.com) is one such site — it is *the* go-to site if you need any detail about a movie. But because the site is information-heavy, it's not the most visually appealing site to use. The dedicated IMDB iPad app, on the other hand, is extremely slick, providing, frankly, a better interface than the actual web site.

## SCRABBLE FOR IPAD

Every word's a winner, baby, that's a fact. Scrabble is a rather extraordinary tech demo of what's possible on the iPad. You can play against the computer, or against other iPad-equipped friends on a Wi-Fi LAN; Facebook friends over the net; real life flesh-n-blood friends with the iPad as a playing board and your iPod touches and iPhones as letter trays, or pass the iPad around from person to person. In short, it has pretty much every angle on playing covered, and even has those controversial aspects of Scrabble built-in, such as a dictionary (gasp).



**\$9.99**  
US Dollars

## THE PINBALL HD

It seems to be a rite of passage for every new computing platform — a new pinball game. Not that there's anything wrong with that! The Pinball HD rocketed to the top of Apple's download lists and hasn't dropped out yet, due to thousands of iPad users madly tapping away at the touchscreen to activate flippers and plungers. The fantastic sound effects and 3D graphics (where the camera follows the ball close up as it makes its way round the machine) make it an addictive, captivating experience.



**\$9.99**  
US Dollars



**\$9.99**  
US Dollars

## PLANTS VS ZOMBIES HD

This game is simple, yet disgustingly addictive. Zombies are marching on your home, and your only defence is... vegetables. You plant them, and different types of plants and vegetables are more or less effective at destroying different types of zombies. Sounds simple, but gets very fast, very soon after the training levels. You'll find yourself glued to the screen with a very tired brain after playing it for an hour. Definitely an ideal way to pass the time in a doctor's waiting room, or on the train, or on the toilet, or... wait, did we just say that?

## STACHETASTIC HD

There are lots of photo manipulation tools for iPad, but none of them are particularly good in our opinion — you can't really do much serious photo manipulation using only a touchscreen — it's mostly whole-photo adjustments only. We spent the most time with one very silly app — 'stachetastic HD. You can spend hours applying outrageous moustaches, mullets, '80s hair, pimp bling and more to your existing photos. Apologies to my poor dog George who got 'stached, capped and waterfall haired for the amusement of APC readers.



**\$4.99**  
US Dollars



**\$0.99**  
US Dollars

## MAGIC PIANO

Play the piano without knowing how to play the piano. It's hard to describe how this game/music app works, except to say that it makes you feel like the piano virtuoso you never were. It's really well worth checking out, even if you have zero musical talent. You'll be playing duets with people on the other side of the world in no time (if you can tap the rhythm of a tune out on your desk, you'll be able to play the piano in Magic Piano).



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## Letter of the month

### LETTER TITLE HERE

Even though Windows Media Center has been around since Windows XP, it has still failed to deliver on the most basic of levels, which is codec compatibility. The concept of the Windows Media Center on the Xbox 360 is a brilliant one though—but falls over due to the old problem of codec support. There are alternative programs for the Xbox 360 to enable codec support such as TVersity ([www.tversity.com](http://www.tversity.com))

and Twonky ([www.twonkyvision.de](http://www.twonkyvision.de)). These allow the Xbox 360 to connect to them rather than Windows Media Center. One of the best media centres around for Windows XP, Vista and 7 is still the free version of XBMC ([www.xbmc.org](http://www.xbmc.org)). Although this project started on shaky ground due to the compiling of the code being performed with a non-registered version of the SDK for the original Xbox, it has flourished and has become one of the leaders in the

media centre race. It fulfils the three bases for a good media centre: looks, ease of use and codec compatibility. Support is cross platform now with versions for OS X, Linux, Windows and Apple TV. Some might question Microsoft's stance on the codec support and their stubbornness to move ahead in this niche, but one thing for sure stands out — they are losing the race.

**Todd Place  
Cairns, Qld**



How long should a consumer appliance like an inkjet printer last before it gives up the ghost?

### THE MOTHER TEST

I can highly relate to John P. Maguire's irritation with the lack of freedom in software (APC May), as for many years I had ignored my irritation with proprietary, mostly Windows software — from the cost to the pain of installing it on new systems. I finally decided that enough was enough, so I turned towards free software — and not just free from money-draining licensing. As a happy user of Ubuntu for more than a year now, I can also happily state that it passes the 'mother test'; she has just started using it recently and wouldn't have a chance of turning back.

**Delan Azabani** ([azabani.com](mailto:azabani.com))  
Willettan, WA

### USB FOR MY JANOME

My wife recently purchased a Janome embroidery machine that can accept embroidery designs

from USB keys, but it seems no key over 32MB (yes MB not GB) will work properly.

This is not a complaint because the machine does everything it should and no-one could expect an embroidery machine in this price range to have an operating system sophisticated enough to handle large file tables or directory structures.

So, if there is anybody out there who knows where I can get some of the old 8MB or 16MB keys, I'll share any brownie points that come my way! If you do, write to [epinions@acpmagazine.com.au](mailto:epinions@acpmagazine.com.au).

**Stuart Willis**  
Dunsborough, WA

### BROTHER'S PLANNED OBSOLESCENCE?

I've had good karma with Brother inkjet printers/MFDs, and even been able to re-ink the individual cartridges using

after-market ink.

Recently, though, after an issue, I did an "Exploded Tech" on my somewhat older DCP-150C and found that there is a large, sealed, 'cotton'-filled tank adjacent to the cartridge area where, obvious from the piping, waste ink is collected from the printer's head cleaning rituals.

On my printer, it was perhaps 10% used after just over a year in light home service. However, quite obviously this is intended to fill and, at some point, the printer will simply stop working. I suspect that the more modern Brother printers with individual cartridges will have a similar system. Planned obsolescence.

**Peter Ellis**  
Canberra, ACT

*Ed replies — Whether it's planned obsolescence or not depends on if you're prepared to get your hands dirty. The tank is*

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## LINUX: A TRUE ALTERNATIVE

I made the switch to Linux about three years ago. Linux is an amazing thing and watching it grow from a "geek's toy" to a reliable, secure and stable operating system has been great fun. (Maybe Google runs on Linux for a reason.) Yes it did take some learning but no different to getting into a new car; all the controls are there — they just might be in different places.

As the owner of a computer business I see a never-ending procession of customers with virus-riddled PCs and destroyed Windows installations.

Many Linux tools such as Parted Magic are in daily use here to help fix them. The customers complain, pay to have them fixed and, although the frustration is understandable, their eyes just glaze over when you mention there is Mac and Linux out there which they could consider.

Maybe that's why over 90% of the PCs in the world run Windows: people hate change.

So three years down the track I enjoy everything on my Linux PC that I could do in Windows, do not suffer from viruses, spyware and other crud, or have to pay for antivirus and other software every time I want something new.

For me the shift to Linux has been very rewarding and great fun.

Rod McLaren

known as the waste toner collector, and replacements can be bought from places like Harris Technology. But can you find one for your older printer?

## WINDOWS COST TO AUSTRALIA

I wonder how much Australia spends annually on Windows and its proprietary application licences compared with almost zero for Linux software. If everyone switched to Linux, the support costs and needs for both systems would be almost the same, so no-one, apart from a few Microsoft sales people, would be out of work in Australia. The lesser resource demands of Linux save hardware costs and reduce our carbon footprint as well.

Since a modern Linux system can read and write most proprietary and all of the open formats and the applications are generally the same for the same

work, migration costs and times are minimal. Many people already use OpenOffice to save licence fees and Firefox to save security outage costs, so migrating to a different operating environment is no harder than upgrading to a different version of Windows.

I think if your readers knew approximately how much Australia spent on proprietary software licences and saw how much money using Linux would save the country, many more people would be willing to try out and install your OVD offerings. Maybe you could even persuade governments and industry.

Tom Russell  
 Brisbane, Qld

## CABLE ISSUES

Just thought I'd drop a line with reference to the Epinion submitted by Keith Aggett in the April 2010 issue, in which he rips into David

Neiger for referring to a supposed lightning arrestor as an over engineered cable. Simply said, there is no lightning arrestor on that type of 2.4GHz antenna. The cable that he is referring to is the coaxial input/output cable. Said cable only extends 300mm from the antenna itself and is rarely longer than 900mm to terminate with another cable. Keith is welcome to comment on the dB loss over that distance and whether it would be worth a larger/thicker cable. The cable is most likely run to the edge of and underneath the corrugated iron roof as there is a gap to the roof cavity there. Not attached to the guttering. As to the need for a lightning arrestor, the unit is almost exclusively plastic, eliminating the need for an arrestor.

Robert A. Hills  
 Brunswick, Victoria





**apcenduser@acpmagazines.com.au**

Do you work in the IT industry and are forced to deal with inept and clueless end users on a daily basis? If you have an interesting or amusing story, email us at [apcenduser@acpmagazines.com.au](mailto:apcenduser@acpmagazines.com.au). All correspondence becomes the property of APC and is subject to editing. Letters must include writer's full name, street address, suburb, state and phone number to be considered for print publication. Address and phone details will not be published.

## Impregnable?

Peter (surname withheld) is a Perth IT consultant who was recently called in by a business to clean up a computer break-in by a disgruntled employee. "The business sacked this guy and revoked his network access password. The employee later logged in using the password of a colleague and managed to delete masses of critical operational information." From the types of files that had been deleted, the company identified the culprit very quickly but decided to keep the story quiet for fear of spooking customers, focusing their efforts instead on preventing a repeat of the incident. Most of all, the business owner had been assured by his IT manager that the network

defences should have been impregnable, so the boss was keen to find out how the former employee had got in. When Peter was called in to investigate, he asked the IT manager what the password policy was. Peter says: "No kidding, the passwords issued to employees consisted of the employee's surnames, plus the numeral 1." Peter then asked the IT manager "Do you think he could have guessed the other's passwords?" He recalls getting a sheepish look, "as if the lights had gone on and he'd realised how stupid he'd been." Peter says, "I deal with a lot of dumb end users, but few were as dumb as this IT manager and his security policies."



### FEELING INSECURE?

If you think your job might not be safe, it's probably not a good idea to delete all your company's data. It won't impress.

### WRONG JOB

The employee of an architectural company in Jacksonville, Florida, got angry last year when she saw a job ad in a local newspaper that looked suspiciously like an ad for her own position. Convinced she was about to be sacked, Mary Lupe Cooley went to the office where she worked and erased seven years' worth of blueprints and drawings, hoping she would put the company out of business. The architectural firm's owner said the

job ad that had so riled Cooley was, in fact, for another position. Hers had been safe — that is, until she destroyed the company's files.

### NORTHERN TERRITORY EMPLOYEE

In 2008, a former employee of the Northern Territory Government deleted more than 10,000 employee records from government servers. The employee, David Anthony McIntosh, had resigned to pursue a

career as a chef, but in a period of heavy drinking after, decided to log into the government systems to which he still retained access and delete 10,475 user accounts from a variety of government departments, ranging from the Health Department to the Supreme Court. McIntosh later said he was trying to prove the government systems were vulnerable.

### UBS LOGIC BOMB

In 2006, a disgruntled employee of

US financial company UBS detonated a "logic bomb" that caused more than US\$3 million in damages at the company's stockbroking unit Paine Webber. The logic bomb was simply a piece of computer code that went on to delete over 1,000 critical files, preventing the company from trading in shares for over a day while the damage was being repaired. The employee, Roger Oronio, had wanted to cause a drop in the company's stock price.

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# watchdog

KEEPING AN EYE ON VENDORS!



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## Don't fall for phishing scams

Despite advances in PC security, phishing is still a problem. **John Thompson**, formerly a network security consultant, points to the best defences against it.



**Phishing is defined as the fraudulent practice of obtaining sensitive information, such as passwords and usernames, by pretending to be a trusted entity, like your bank. Phishing continues to be a problem because many users fail to take basic steps to avoid being duped. The "it won't happen to me" syndrome continues. But follow these tips and you should be safe.**

### CHECK WHERE THE EMAIL REALLY COMES FROM

One quick test for the validity of an email is to view its headers. Take a look at the lines beginning with the text 'Received from'. These are added in reverse order, so the original sender is the last one. If the email is legitimate, the domain name mentioned here will match the sender's domain. Quite often, however, this will simply be stated as 'Unknown', which usually means that it's come from a server that's been compromised to become part of a botnet.

The most way to check if an email is real is to trace it back to its source. You can do this using the online tracer at [ip-address.com](http://ip-address.com) ([www.ip-address.com/trace\\_email](http://www.ip-address.com/trace_email)).

First, copy the headers from your email and paste this text into the large input box on the site. Then press the button

marked 'Trace email sender'. After a few moments a results page will appear, telling you the source of the message. Not only that, but a Google Maps display shows the geographic location of the sender. If it's not where you're expecting it to be from (why would your bank be sending emails from China, for example?) then it's probably bogus.

### PHARMING

But it's not just bogus emails from banks. Other cybercriminal techniques are also finding their way into phishing attacks, making them far more difficult to spot. Pharming uses


a Trojan to redirect you to a bogus web site when you try to visit a legitimate URL. The easiest way to do this is to alter your Hosts file to add new, fake information. This file exists on all domestic OSs and is a text file that pairs domain names with IP addresses. When you click on a link, the OS inspects the content of this file first. If it finds a match for the domain, it blindly uses the IP address. If there's no match, it consults its local cache of domain names and IP addresses gathered during recent surfing activities. If it still doesn't find a match, it asks your ISP's DNS servers to supply the relevant IP address.

You can check that no-one has edited your Hosts file as follows. In all versions of Windows, the Hosts file is stored in the directory

'system32\drivers\etc', which is usually under C:\Windows. In Linux, the file is called /etc/hosts. In both cases, the file contains a list of IP addresses and their associated domains.

Check to make sure that nothing has added any sites to this file. If it has, it's likely you've been infected — so update or change your virus protection and perform a full scan, including a check for stealthy rootkits, which can manipulate the information returned by OS calls to hide processes that will re-add those bogus entries to the Hosts file.

### COMPROMISED ROUTER

Another worry is the compromise of local routers. These increasingly sophisticated devices are incorporated into domestic broadband points and face the internet all day, every day. They act as gateways, giving out local IP addresses and telling PCs on the local network where to find the ISP's DNS servers. It's vital that you apply all security patches as your ISP provides them and use a strong (and frequently changed) administrator password. 

### GO PHISH

Common sense (and a few simple tips) should help make your IT defences more impenetrable.



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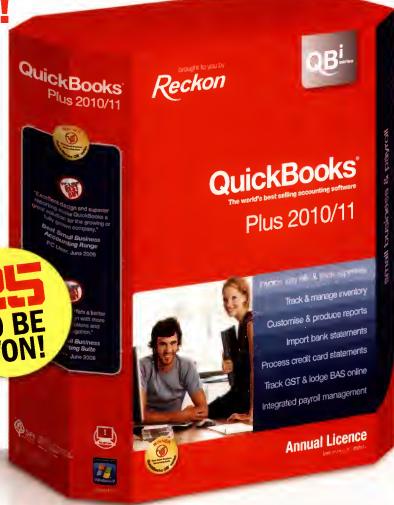
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LABS ROUND-UP

## BEST HDTVs FOR SPORT

If a TV can do sports well, it can do anything. So with the World Cup about to start, we explain what makes a TV good for sport.

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NICK RANCE - TEEN  
NICK'S PICK

## HTC DESIRE

Though I do love my iPhone for its flexibility in running multiple apps, I chafe against much of the restrictiveness Apple has placed on what third party app developers can do on it. Enter Android. HTC's Desire is the second-generation Android phone and is beginning to look like a real contender to the iPhone's position as the smartphone du jour.

### PERFORMANCE ★★★★★

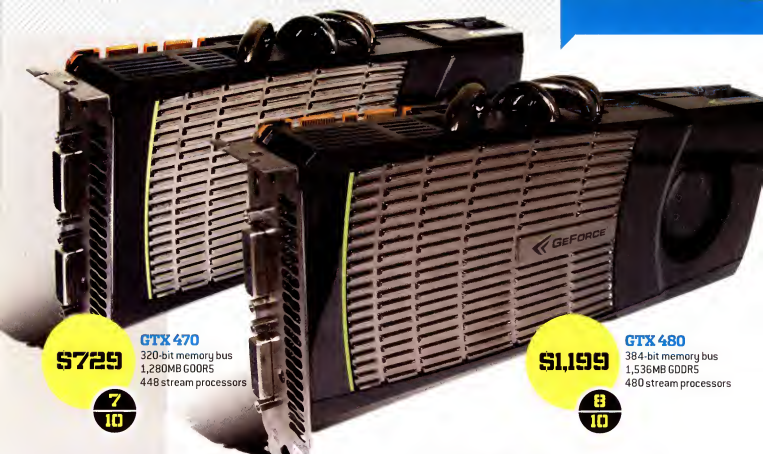
It looks good, it works like a dream and it's truly a desirable phone. The number of apps available for Android is growing steadily and we'll see some real action on that front shortly.

### PRICE ★★★

It's expensive, but so are all smartphones. As they are best bought on a contract, it's wise to shop around for one that matches your usage model primarily; if not, buy it outright. Telstra has a short term exclusive on the Desire.

### SETUP ★★★★★

Everything is integrated if you're a Google user; but if not, you'll quickly have to come in to the fold. Thankfully, the services like Gmail are above and beyond Apple's equivalent (paid) services.

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# Gigabyte GTX series: GTX 470 GTX 480

The GTX 470 & 480 benchmarked.

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[www.gigabyte.com.tw](http://www.gigabyte.com.tw)

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PhysX  
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40nm core

Looking at the technical specifications of the GTX 400 series, it's clear the models have some serious power behind them. While stock was running a little later than people had hoped, Gigabyte's is one of the first retail versions of the model to arrive in the country.

Looking in the package of the Gigabyte cards there's nothing that we haven't really seen before; to be honest we would say the bundle is disappointing due to the high price of the product and lack of extras in the box. The only standout inclusion is a mini HDMI-to-HDMI cable that sits beside the two Dual-Link DVI ports on the card.

The cooler design between both models is very similar with the fan sitting towards the back of the card, as with most high-end cards, the whole PCB is covered by the cooler, giving us not much to look at. The GTX 480 has been rumoured to have huge heat though, and for that reason NVIDIA has incorporated a massive visible heatsink. The look of the GTX

480 is extremely mean; the worrying thought is that NVIDIA needed to utilise such a massive heatsink.

To some the bundle won't be a big deal — the most important part of the GTX 400 series bundle is the card itself. Using 3DMark Vantage just to see how the models sit against the ATI units, the GTX 470 and GTX 480 score P17224 and P21491 respectively; the HD 5850, HD 5870 and HD 5970 score P17057, P21090 and P28414.

3DMark Vantage is of course only a synthetic benchmark and doesn't hold a huge amount of weight when it comes to real-world performance; what it does though is let us get a bit of an idea of how models will perform, and based on the scores we can see it's very similar to the HD 5850 and HD 5870.

The GTX 470 performance numbers are very interesting in real-world gaming. Across a number of games including Resident Evil 5, BattleForge, Tom Clancy's H.A.W.X., Far Cry 2, Batman AA and Dark Void we see that while the GTX 470 is able to outperform

the HD 5850 at 1,680 x 1,050, as we move up in the resolution table to 1,920 x 1,200 we see both perform very similarly, and at 2,560 x 1,600 the HD 5850 is able to outperform the GTX 470 almost every time.

The only other time we see the GTX 470 really shine is when AA is turned on; under Far Cry 2 the GTX 470 manages to perform on par with the dual-GPU HD 5970 while under RES it offers a 10% performance increase over the HD 5850.

Moving onto the GTX 480, which NVIDIA has labelled as the "World's Fastest GPU", we see it's not plagued with the same issues as the GTX 470 when it comes to 2,560 x 1,600 gaming; compared against the HD 5870 we see it almost every time outperform the model from ATI and, like the GTX 470, really shines in AA tests.

While performance numbers are a large part of the story it's clear that we have to address the rumours of high power requirements, heat and noise levels. Unfortunately, it all turned out to be true. Measuring the back of the



core the GTX 470 ran at 76.1°C and the GTX 480 at 73.5°C — compared to the HD 5800s, which sit over 10°C cooler, it's worrying. Noise levels are also an issue, with the HD 5870 being the loudest card we've tested to date at 62.6dB, the GTX 470 comes in at 73.6dB and 68.5dB for the GTX 480.

Power draw on the HD 5970 is 197 watts at idle and 399 watts at load; the GTX 470 is significantly slower in performance and comes in at 205W/397W, while the GTX 480, which is again still slower than the HD 5970, comes in at 274W/448W.

The GTX 470 is more expensive than the HD 5850 and at 2,560 x 1,600 is consistently slower — that's the bad bit. The good bit is we see the model outperform the HD 5850 at 1,920 x 1,200 and lower, and when AA comes into the picture the model really performs. Without AA it's worth knowing that the HD 5850 offers us playable frame rates in games at maximum detail; when it comes down to it, the GTX 470 at 1,680 x 1,050 or 1,920 x 1,200 isn't going to offer a better gaming experience. To give you an example, at 1,920 x 1,200 with Very High Image presets we see the GTX 470 score a minimum FPS of 58 under Far Cry 2 while the HD 5850 scores 52. Above a minimum of 30FPS you're not going to see a difference, so while in a graph the HD 5850 does lag behind slightly, those GFPS won't make a noticeable difference. If the minimum on the GTX 470 was 32FPS and the HD 5850 was 26FPS that difference is game-changing, as we move above that 30FPS minimum we need to see.

What you need to know about the GTX 480 is that NVIDIA markets it as the "World's Fastest GPU" and not "World's Fastest Video Card". That's because the GTX 480 doesn't out-perform the HD 5970, which is a dual-GPU video card based on the HD 5870 GPU.

From a performance front the GTX 480 does out-perform the HD 5870 consistently; this comes at a

cost, and it's one that isn't all that impressive. Like the GTX 470 its performance against the HD 5870 isn't game-changing for the most part. The model really shines like the GTX 470 in AA tests; here we can see at times it's able to match and sometimes out-perform the dual-GPU HD 5970.

In a day and age in which it's cool to be green, the GTX 400 series is doing nothing for our environment, with it drawing huge amounts of power when compared to the competition. If you're paying this kind of money, chances are you'll have a high-quality power supply; it doesn't change the fact though that it's going to consistently draw some serious juice from your power socket.

Heat and noise levels are at a level that is worrying to some, unacceptable to others and just plain unimportant to others. The numbers are something that you have to pay attention to though when it comes to purchasing the card.

We haven't seen a series that has such clear pros yet such clear cons in a long time; heat, noise, power and price for both the GTX 470 and GTX 480 are in some cases at an unacceptable level. Performance and features like CUDA and PhysX are clear standouts. You have to decide if you can handle the cons of the GTX 480 to own the "World's Fastest GPU". As for the GTX 470, it's a little less clear; it's over priced yet its AA performance is fantastic. Buying it over a HD 5850 is going to be a tough decision, especially since you're getting close to HD 5870 money, which out-performs it every time.

If you're wanting the fastest video card on the market though, there's still only one choice: the dual GPU HD 5970. Unless power draw can come down on the GTX 480 GPUs as well, the chances are we won't see anything from NVIDIA that will compete against this model.

Shane Baxtor

## 3DMARK VANTAGE PRESETS

|                         | Performance (P) | Extreme (X) |
|-------------------------|-----------------|-------------|
| Gigabyte GTX 480 1536MB | 21,491          | 9,377       |
| NVIDIA GTX 470 1280MB   | 17,224          | 7,346       |
| Sapphire HD 5850 1GB    | 17,057          | 7,333       |
| HIS HD 5870 1GB         | 21,090          | 9,199       |
| Sapphire HD 5970 2GB    | 28,414          | 13,881      |

## UNIGINE HEAVEN

|                         | V2 1,680 x 1,050 | V2 1,920 x 1,200 |
|-------------------------|------------------|------------------|
| Gigabyte GTX 480 1536MB | 1,493            | 1,266            |
| NVIDIA GTX 470 1280MB   | 1,201            | 1,008            |
| Sapphire HD 5850 1GB    | 831              | 743              |
| HIS HD 5870 1GB         | 983              | 883              |
| Sapphire HD 5970 2GB    | 1,566            | 1,407            |

## RESIDENT EVIL 5 — HQ

|                         | 2,560 x 1,600 |
|-------------------------|---------------|
| Gigabyte GTX 480 1536MB | 77            |
| NVIDIA GTX 470 1280MB   | 62            |
| Sapphire HD 5850 1GB    | 57            |
| HIS HD 5870 1GB         | 66            |
| Sapphire HD 5970 2GB    | 85            |



## NOISE OUTPUT

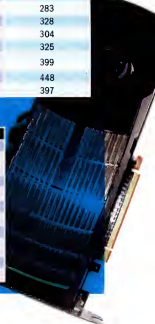
|  | At Idle (dB) | Under Load (dB) |
|--|--------------|-----------------|
| Gigabyte HD 5830 1GB                               | 60.7         | 61.5            |
| MSI HD 5830 Twin Frozr III 1GB OC @ 875 / 4760 QDR | 56.1         | 61.1            |
| HIS HD 5850 Turbo 1GB                              | 57.6         | 59.5            |
| Sapphire HD 5850 1GB                               | 60.8         | 61.1            |
| Gigabyte GTX 285 1GB                               | 58.1         | 58.8            |
| HIS HD 5830 1GB Turbo                              | 60.1         | 60.2            |
| HIS HD 5870 1GB                                    | 56.4         | 62.6            |
| Sapphire HD 5970 2GB                               | 56.1         | 59.4            |
| Gigabyte GTX 480 1536MB                            | 59.5         | 68.5            |
| NVIDIA GTX 470 1280MB                              | 56.5         | 73.6            |

## POWER CONSUMPTION

|  | At Idle | Under Load |
|--|---------|------------|
| Gigabyte HD 5830 1GB                               | 225     | 290        |
| MSI HD 5830 Twin Frozr III 1GB DC @ 875 / 4760 QDR | 176     | 294        |
| HIS HD 5850 Turbo 1GB                              | 180     | 295        |
| Sapphire HD 5850 1GB                               | 181     | 283        |
| Gigabyte GTX 285 1GB                               | 191     | 328        |
| HIS HD 5830 1GB Turbo                              | 191     | 304        |
| HIS HD 5870 1GB                                    | 182     | 325        |
| Sapphire HD 5970 2GB                               | 197     | 399        |
| Gigabyte GTX 480 1536MB                            | 274     | 448        |
| NVIDIA GTX 470 1280MB                              | 205     | 397        |

## TEMPERATURE

|  | Degrees Celsius |
|--|-----------------|
| Gigabyte HD 5830 1GB                               | 50.4            |
| MSI HD 5830 Twin Frozr III 1GB DC @ 875 / 4760 QDR | 52.5            |
| HIS HD 5850 Turbo 1GB                              | 55.8            |
| Sapphire HD 5850 1GB                               | 59.2            |
| Gigabyte GTX 285 1GB                               | 60.1            |
| HIS HD 5830 1GB Turbo                              | 62.7            |
| HIS HD 5870 1GB                                    | 63.1            |
| Sapphire HD 5970 2GB                               | 68.9            |
| Gigabyte GTX 480 1536MB                            | 73.5            |
| NVIDIA GTX 470 1280MB                              | 76.1            |







# Fujitsu SH760 LifeBook

Good things come in portable packages.

Fujitsu  
www.fujitsu.com  
\$2,299

Snappy performance;  
very portable.

Expensive;  
GPU is average.

## SPECIAL FEATURES

Intel i7 620M CPU  
4GB DDR3 1,066MHz  
NVIDIA GeForce 310M



Sometimes you want a notebook that isn't the fastest, smallest, or cheapest. Sometimes you want an all-rounder that is great for a bit of Excel, fine for surfing the web, and can be used on a desk or outdoors. The Fujitsu SH760 is one such notebook.

It's quite slight, without being a netbook. The 13.3in display is big enough for day-to-day duties, yet its paper-thin depth helps keep overall weight down to just 1.6kg. It's a brilliant display when it comes to brightness... literally. Employing Fujitsu's "SuperFine Back-Light LEO" display technology, the image quality is as attractive as it is bright, with a richness to the colours that is absent in all but the most expensive screens. Viewing angles aren't so great though.

For such a portable notebook, the keyboard is deceptively large, offering a full-sized experience for flabby fingers. There's no numpad, but the touchpad is just right. We especially like the sturdy buttons astride the

finger sensor. A set of handy shortcut buttons above the function keys deliver prompt access to email, internet, VoIP and the Economy mode. Speaking of VoIP, the built-in webcam delivers a nice sharp image.

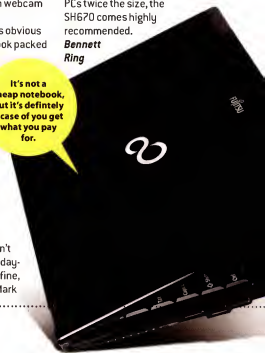
During our testing, it was obvious that this lightweight notebook packed a heavyweight punch. Applications simply flew by, opening and responding extremely quickly. This is courtesy of the Intel i7 620M CPU, a dual-core beastie which hums by at 3.33GHz when under load. It's paired with 4GB of DDR3 at the reasonable speed of 1,066MHz. Don't expect a gaming platform though, as the NVIDIA GeForce 310M isn't up to the task. But for basic day-to-day duties, the SH760 is fine, as demonstrated by its PCMark

Vantage score of 7,419, one of the best results we've seen.

If you want a notebook that delivers performance usually only found in PCs twice the size, the SH760 comes highly recommended.

**Bennett Ring**

It's not a cheap notebook, but it's definitely a case of you get what you pay for.



# MSI GT640

Is this really the world's fastest notebook?

MSI  
www.msi.com  
\$2,650

Relatively portable for  
a gaming machine.

Woeful performance;  
lacking multimedia features.

## SPECIAL FEATURES

NVIDIA GeForce 250M  
Intel i7 720QM  
4GB DDR3 1,333MHz

When you're telling a tech journalist that you have the world's fastest anything, you'd better damn well make sure you do. By a long shot. We don't particularly like such bold claims that fail to deliver.

We sniffed a rat as soon as we saw the GT640's specs. Sure, the Intel i7 720QM CPU is fast, especially when it winds up to its full speed of 2.8GHz under load. 4GB of DDR3 memory is decent enough, especially considering it's attached to the Intel PM55 chipset. But what's this? An NVIDIA GeForce GTS 250M GPU? How on Earth can this sluggish mid-range card come anywhere near the ATI Radeon Mobility HD 5870 we tested in last month's ASUS G73J? Simple answer — it can't.

We ran PCMark Vantage on the GT640 at the exact same time that we were testing the Fujitsu LifeBook (above). Note that the Fujitsu is a mid-range notebook, while the GT640 is the "World's fastest"! So imagine

our surprise when the Fujitsu beat the GT640 (7,419 compared to 4,972).

Suddenly it appeared that the world's fastest notebook couldn't even beat a standard notebook, let alone a high-end multimedia beast. Hmmm. Perhaps the GT640 can pull some amazing 3D performance out of its hat? We headed over to 3DMark Vantage to find out. Last month, the ASUS G73J (which costs the same as the GT640 but has a Blu-ray drive, double the RAM and a larger screen) posted an excellent result of 6,129 3Dmarks thanks to its holy trinity of fast CPU, memory and GPU.

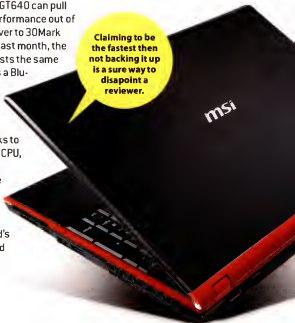
The GT640, on the other hand, posted 3,858 3Dmarks.

At this stage, MSI's claims of "World's fastest" were well and

truly in tatters. Combine this ho-hum performance with the lack of any remarkable features, and the GT640 is left sorely lacking.

**Bennett Ring**



Claiming to be the fastest then not backing it up is a sure way to disappoint a reviewer.





9  
10


# Apple MacBook Pro

Core i7, two graphics cards and all-day battery life... Wow!

Apple   
www.apple.com/au  
From \$2,798 

Stunning hardware design; blistering performance; all-day battery life. 

Only two USB ports; gets uncomfortably hot; no built-in external display ports. 

**SPECIAL FEATURES**   
8x slot-loading SuperDrive  
SD card slot  
Airport Extreme Wi-Fi  
wireless networking



It's been three months since Intel's new Core i5 and i7 processors launched, so in that sense Apple's new 15in MacBook Pro — the flagship of which now runs the zippy 2.66GHz Core i7 processor — is hardly cutting edge. But in true Apple fashion, the MacBook Pro still manages to look avant-garde, with a couple of new tricks up its sleeve.

The new 15in MacBook Pro comes with two graphics processors: the NVIDIA GeForce GT 330M with 512MB of VRAM, and an integrated Intel HD Graphics processor. Similar to the dynamic overclocking within the Core i7 chip [which switches between 2.66GHz and 3.33GHz, depending on processor load], Apple's new graphics switching technology seamlessly toggles between the two GPUs on demand, so you only get the extra performance when you need it.

Where the extra horsepower isn't warranted [like when you're surfing the web or checking email],

the MacBook Pro uses the lesser spec to save on battery life. Apple rates the 15in model for 8-9 hours of 'wireless productivity' — put to the test, we were able to squeeze in just over seven hours of web surfing over Wi-Fi with the screen set to 40% brightness. This is around an hour short of the battery life we got from this notebook's predecessor, but it's a reasonable tradeoff for the huge performance boosts.

The MacBook Pro runs Mac OS X 10.6.3 [Snow Leopard] out of the box, and as with previous Intel-based MacBooks, it's a snap to install Windows on a separate partition. Apple's claim of a 50% performance increase held up in PCMark Vantage [a test for general-purpose computing tasks], scoring 6,275 — a 77% increase over the previous model. 3DMark 06 returned an excellent score of 6,768, demonstrating the MacBook Pro as a worthy mobile gaming rig. Given the older model ran an NVIDIA

GeForce GT 320M, the relatively modest 14% improvement in graphics performance is understandable — the bigger change in this version is the move to the dual-GPU architecture and automatic graphics switching technology.

Jobs has done it again with this new and impressive MacBook offering.

Design-wise, nothing much has changed. It's the same ultra-sleek unibody aluminium enclosure that we made such a fuss over in our last review, with the plus-sized multi-touch glass trackpad, back-lit isolated keyboard and built-in battery. The current version is a smidgeon heavier [2.54kg over 2.45kg], and the trackpad now supports the same inertial scrolling that iPhone owners have enjoyed for years, letting you control the speed of scrolling through long web pages and Word documents based on how fast you gesture up or down the trackpad. The bright, evenly lit 15in 1,440 x 900 display, precision-cut keyboard and oversized touchpad all make for a Rolls Royce-like computing experience, save for one thing: the left hand side [underneath as well as above the left speaker on top] periodically gets hot enough to boil an egg on.

We don't begrudge Apple's decision to recycle the MacBook Pro design, it's still miles ahead of the competition, after all. But there are a couple of things we would've liked to see updated. Having only two USB ports feels unnecessarily limiting — there's certainly enough space to include more, and given the two ports are packed close together, you'll need to use a USB extension cable to plug in a USB mobile broadband modem with another USB device. The other niggle is the lack of built-in external display option; it comes with a Mini DisplayPort, but it's useless on its own — you'll need to buy a DVI, HDMI or VGA adapter separately.

Other extras and made-to-order options include the Apple Remote (for using Front Row and iTunes at a distance), a higher-res 1,680 x 900-pixel display resolution, an anti-glare coating on the screen, and the ability to swap the 500GB 5,400rpm hard drive to a 500GB 7,200rpm hard drive or 128GB/256GB/512GB SSD.

Jenneth Orantia





# BlackBerry Storm2

The touchscreen phone that RIM should've launched with.

**Vodafone**   
**www.vodafone.com.au**  
**\$799**

**Snappy performance; innovative haptics; best-in-class email.**  
**Heavy; limited multi-touch; weak web browser.**

**SPECIAL FEATURES**  
 2GB internal memory  
 5.5-hour talk time  
 3.2-megapixel camera with auto-focus and flash



BlackBerry's first touchscreen phone, the Storm, received a lackluster reception due to the 'SurePress' touchscreen: a display that doubled as a single mechanical button that clicked in the middle while you were typing or selecting an item on-screen. It was an interesting experiment in haptics that fell flat because it was slow and clunky to use. Happily, the implementation of SurePress in the Storm2 is better. The fidgety mechanical button has been replaced with an electronic system that simulates a click in the exact position that you press the screen. Unlike the first Storm, the display doesn't actually move (although it feels like it does), and it allows for multi-touch when you're using the software keyboard and selecting blocks of text.

The improved SurePress display has made typing on the software keyboard a more natural process, although it's still not a patch on the efficiency of a proper QWERTY keyboard. The Storm2 has a near-identical hardware design and

processor to its predecessor, but twice the application memory (256MB) and improvements in the latest BlackBerry OS 5 operating system has made it snappier.

Wi-Fi is finally included, joining 2,100MHz HSDPA, Bluetooth 2.1 and A-GPS. Setting up email is just as easy as ever using the BlackBerry Internet Solution (and even easier if you're on the corporate BES). The web browser has only seen minor improvements since the last version of the BlackBerry OS — pages render a little quicker, but it still doesn't support tabbed browsing, Flash or multi-touch for zooming. Email die-hards may still prefer physical keyboards, but if you want a touchscreen phone with solid email capabilities, the Storm2 is a worthy candidate.

Jenneth Orantia



On the second go around, BlackBerry nails the touchscreen format.



# Motorola DEXT

Motorola breaks its dry spell with the first of many Androids.

**Optus**   
**www.optus.com.au**  
**\$0 on Optus \$49 plan**

**Push social networking and email; well-designed QWERTY keyboard; integrated contacts.**

**Sluggish performance; dated hardware design; cluttered default homescreen.**

**SPECIAL FEATURES**  
 3.1in capacitive display  
 5MP camera with auto-focus  
 Free remote wipe and GPS tracking

It's the first device we've seen from Motorola in a long time — ten months and 19 days, actually, which is donkey's years compared to other phone vendors that typically launch at least one new device a month.

Motorola is the third vendor in Australia to release an Android smartphone after HTC and Samsung. It has customised the UI with MOTOLBLUR: a set of homescreen widgets, social networking apps, and a contacts app that automatically merges your Twitter, Facebook, MySpace and email contacts with your phonebook, plus it uses a backend server that aggregates all of your social networking content so it can push them out to the DEXT in real time.

There are some neat touches in MOTOLBLUR that we haven't seen in other smartphones, such as the incoming call screen that displays the caller's Facebook status, and the universal inbox that aggregates your

SMS, Facebook and Twitter messages into a single view.

MOTOLBLUR is a great idea in theory, but it's hamstrung by the DEXT's sluggish performance. It took a leisurely 50 seconds to start up, and another 20 seconds on top of that to load the widgets on the homescreen. It also lags when using the software keyboard, and it's slow to move between the five available homescreens.

The DEXT's slideout QWERTY keyboard is a pleasure to type on, with large, raised keys and a sensible layout that includes a five-way controller. However, the overall hardware design is very dated,

reminiscent of HTC's older smartphones. It's a promising introduction to Motorola's new fleet, but we're hoping that the next devices will have more horsepower and sexier designs.

Jenneth Orantia



Some nice innovations and a great keyboard — but not much oomph.

9  
10

# Kingmax Hercules PC3-17600 4GB

Can the Greek god help Kingmax stand out?

**Kingmax** ★  
**www.kingmax.com.tw** ★  
**\$259** ★

High MHz; great OC potential; great value. ✓

Relaxed timings. ✗

## SPECIAL FEATURES

2,200MHz DDR  
Bolt-on heatsink  
10-10-10-30-2T @ 1.65V  
4GB



We haven't seen much of Kingmax over the past 18 months, but it's clear they're ready to get back into the memory game. With a new series and some speed to boot, Kingmax looks set to attack the market aggressively.

The Hercules series sits up top of the Kingmax pyramid and carries with it a massive 2,200MHz DDR memory clock, on the timings front we've got a 10-10-10-30 setup, which is the most relaxed we've seen to date.

Firing up our P55 testbed and looking through our RAM benchmarks the kit has some serious performance, with it only lagging behind more aggressively timed 2,200MHz DDR kits. When it came to real-world performance in games it's exactly as you would expect; fast, though no real difference when compared to modules running slower, with the CPU at the same speed.

The biggest issue we've had with PC3-17600 modules has been overclocking potential; fortunately we didn't have the same issue with these modules, which not only posted at 2,300MHz DDR and ran our benchmarks but also posted at 2,342MHz DDR and ran them better.

The overclock is when we see the modules really give us a boost in performance. Thanks to the extra memory MHz on offer, we're able to push our CPU from 3.85GHz to 4.1GHz, which yields some nice gains in synthetic tests and the real world. A high-

quality heatsink that is screwed together adds a really nice touch when it comes to quality. The high-quality heatsink also means we didn't need to use any active cooling on the modules to achieve the high overclocks.

It's tough to stand out in this highly competitive memory market; it's clear though that Kingmax is ready to hit the market aggressively with these new modules. Hercules might just be the guy that Kingmax needs to stand out.

Shane Baxtor



6  
10

# Kingston HyperX LoVo

Saving the planet, one RAM module at a time.

**Kingston** ★  
**www.kingston.com** ★  
**\$360** ★

Extremely low voltage. ✓

Extremely high price. ✗

## SPECIAL FEATURES

2 x XMP profiles  
1,600MHz CL9-9-9-27 @ 1.35V

Kingston has released a range of 'green' LoVo memory modules that are bound to interest tree-huggers everywhere.

Standing for Low Voltage, this memory runs on the smell of an oily rag. The kit we tested [KH1600C9D3LK2/4GX] needed just 1.35 volts to run at 1,600MHz. The flagship kit, the KH1866C9D3LK2/4GX goes one better, needing just 1.25 volts to hit the same speed, and managing a healthy 1,866MHz when the voltage is bumped up to 1.35 volts. This is reassuring for overclockers, where higher voltages are usually needed for these kinds of frequencies, resulting in hotter CPUs. The lower voltages are also of benefit in overcrowded cases where heat can be an issue.

The memory timings are respectable, with our kit running at CL9-9-9-27 at 1,600MHz. Unfortunately we couldn't overclock

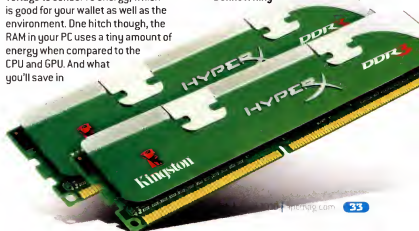
it on our usual testbench, as the Intel DP55SG has extremely limited memory-tweaking options above 1,600MHz. It's worth noting that this kit isn't designed to overclock, so we doubt there'll be much spare change after you hit 1,800MHz or so. Much cheaper kits can do the same speed or better at voltages that won't damage your CPU (or your wallet).

Which leaves the main benefit of this memory being running at a lower voltage to conserve energy, which is good for your wallet as well as the environment. One hitch though, the RAM in your PC uses a tiny amount of energy when compared to the CPU and GPU. And what you'll save in

electricity, you'll pay many times over on its asking price.

As a result, unless you must have ultra-cool memory, or you're worried about frying your CPU with memory running at 1.65 volts (which works fine for millions of people), the LoVo kit is an overpriced gimmick playing on the world's environmental guilt. If it was the same price as standard DDR3, we'd be whistling a very different tune... but it's not.

Bennett Ring



5  
10

## HTC Desire

HTC has another winner on its hands.

No desire to own an iPhone? This offering from HTC is sure to steal some Apple sales.

Telstra **★**  
<http://telstra.com.au/>  
\$779 **\$**

Sexy hardware design; **✓**  
blisteringly fast performance;  
excellent web browser.

Limited internal memory; **✗**  
limited video codec support.

### SPECIAL FEATURES **i**

3.7in AMOLED touchscreen  
1GHz Qualcomm  
Snapdragon processor  
Flash 10 support



As with all of HTC's Android phones, the Desire has a model name dripping with cheese, but after handling it, we can appreciate the sentiment. Between the sleek hardware design, vibrant AMOLED touchscreen, customisable HTC Sense interface and other advanced functions, it's likely to leave you lusting after it.

It's surprising how similar it feels to an iPhone. It's roughly the same size and weight of the 3GS, with a slightly larger display, rubberised coating on the back, and more buttons at the bottom. It uses the same HTC Sense interface that we first saw on the Hero, with the addition of more widgets like Friend Stream (which aggregates Facebook, Flickr and Twitter feeds) and a news reader.

The interface is customisable, letting you populate up to seven homescreens with your choice of widgets and shortcuts plus configure different sets of homescreens and wallpapers for particular situations like work and play.

Compared to older Android phones, the HTC Desire runs at a gallop thanks

to the 1GHz Qualcomm Snapdragon processor and 576MB of RAM.

The Desire's 3.7in AMOLED display — the largest currently available on a mobile device — is a stunner, with visibility that extends to every angle and colours that are stronger and brighter than on other smartphones.

As for the browser, well, let's just say that the iPhone can't brag it has the best mobile web experience any more. The HTC Desire renders web pages just as well as the iPhone but with the added bonuses of a larger 800 x 480 resolution.

And then there are all of the extra little touches that enhance the Desire's usability as a phone, like the unified contacts view that aggregates all of your communications with each person (including email, Facebook events, status and photos, and call history) and presents them in a tabbed interface, as well as the ringer volume that lowers when you pick the phone up.

Jenneth Orantia



7  
10

## HP TouchSmart 9100

Making business folk more touchy-feely.

HP are bringing touch into your office — don't throw out your keyboard just yet though.

HP **★**  
[www.hp.com.au](http://www.hp.com.au)  
\$1,999 **\$**

A relatively cheap way for **✓**  
businesses to buy touch PCs.

No bundled business touch apps; **✗**  
slightly underpowered.

### SPECIAL FEATURES **i**

First business-oriented  
touchscreen computer  
23in display with Full HD  
1,920 x 1,080 resolution

We've been impressed with HP's TouchSmart PCs over the past few years and, since Windows 7 with its touch enhancements came along, they look more attractive than ever. But they've all been highly consumer-oriented up to now.

HP claims that the 9100 is optimised for business but we fail to see where — the main apps of Post-it notes and picture viewing are still prominent and the most business-like app is the calendar, which is quicker to access in Outlook via keyboard and mouse. The web browser is great fun to use. But this is hardly a productivity enhancement.

Although it's a decent touch PC, HP has designed it to be more of a platform to mould into your own environment. With touch computing still in its infancy, developers' imaginations are the only barrier, although smartphones and the iPad should be providing many ideas.

In terms of spec, the screen is 23in with a Full HD 1,920 x 1,080 resolution.

It has a glossy coating, which can be a bit reflective, but has a near miraculous ability to withstand fingerprints.

The specifications start at \$1,999, but business bulk buyers will be able to determine spec and price on request.

Our unit had a 2.26GHz Core 2 Duo P7570 processor with 4GB RAM, a 300GB hard disk and bottom-end NVIDIA GeForce 200 graphics. It wasn't the most responsive machine in terms of programs loading, but it was fine for touch applications. A PCMark Vantage score of 4,206 shows that this is no computational workhorse — more of a workstation — and a 30Mark Vantage score of 2,321 underlines that this is no games machine.

Nick Ross





# IBUYPOWER.COM.AU - 03 9569 4305

## RAPTOR 18.4"

18.4" 1920x1080  
SLI GTX285M  
Core i3/i5/i7  
Up to 8Gb DDR3 RAM  
Up to 3 Hard Drives  
Windows 7

FROM \$4799



## JUGGERNAUGHT 17.3"

17.3" 1920x1080  
GTX280M  
Core i3/i5/i7  
Up to 8Gb DDR3 RAM  
Up to 2 Hard Drives  
Windows 7

FROM \$3599



## RAPTOR 15.4"

15.4" 1920x1080  
GTX260M  
Centrino Dual/Quad Core  
Up to 8Gb DDR3 RAM  
Windows 7

FROM \$2749



## TERMINATOR P55

i5/i7 Quad Core  
Overclocked up to 4Ghz  
Up to 16Gb DDR3 RAM  
Liquid Cooling  
P55 Motherboard  
Crossfire or SLI  
Windows 7

FROM \$1799



## BUDGET GAMER

Dual/Quad Core  
P45 Motherboard  
4Gb DDR2 RAM  
Ati/Nvidia Graphics  
Windows 7

FROM \$969



## NET-LITE PC

Dual Core CPU  
G41MT Motherboard  
Up to 4Gb DDR3 RAM  
Up to 512Mb Graphics  
Windows 7

FROM \$749



**Gaming Systems  
now available with  
Asetek Liquid  
Cooling**



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System or Laptop**

**All P55/X58 Systems  
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**FREE SHIPPING AUSTRALIA-WIDE**

**3 YEAR WARRANTY ON ALL SYSTEMS AND LAPTOPS**

**NO CREDIT CARD SURCHARGE**

**ALL SYSTEMS AND LAPTOPS ARE FULLY CUSTOMISEABLE**

Enter Coupon Code: APCJUNE10 when checking out to receive \$50 off any System or Laptop

8  
10

# Alienware Area 51

A PC you can stroke.

**Alienware** ★  
[www.alienware.com.au](http://www.alienware.com.au) @  
**From \$4,000** \$  
Looks awesome; ✓  
is awesome.  
Expensive. ✖

**SPECIAL FEATURES** i  
Customisable spec  
Customisable lighting  
Fins on top  
Motorised front panel



First impressions of the Area 51 aren't half bad. It's got fins! At the top of the full tower chassis are spring-loaded fins which you can run your hand down and stroke as if your PC was some kind of alien pet... which it kinda is. The front fin is a sliding cover for three USB ports, FireWire, eSATA and dual audio jacks. The back fins are buttons for opening the side doors, which swing open like extra-terrestrial bat wings.

In our review unit, the processor was a Core i7 975 Extreme Edition running at a stock 3.33GHz — you can order it overlocked up to 3.86GHz. Other performance upgrades include 12GB of 1,600MHz RAM — not great value over the included 12GB of 1,333MHz RAM. A 1GB Samsung hard disk was bundled although options include WD Velociraptors and even having two 512MB SSDs with RAID 0 striping. Our system had space for two additional optical drives (to complement the DVD writer) and a 3.5in external drive. Rear connectivity

has everything you'd expect including six USB ports, eSATA and two LAN ports.

Windows 7 64-bit is included as is a 1-year Dell Premium warranty. Our review unit cost a stonking \$6,704 and can be significantly upgraded to around \$10,000, but it can also be downgraded to around \$4,000. Our spec delivered a humungous 27,162 in 3D Mark Vantage — easily the highest score we've ever had. This won't just handle any games for the foreseeable future, it will handle them in 3D too. The PCMark Vantage score of 10,257 is high, but would be higher with a faster hard disk.

It's a desirable beast but it comes with a potentially massive price tag.

That said, you get what you pay for. This PC is arguably the ultimate status symbol and undisputedly the ultimate gaming machine.

Nick Ross



Alien pet or desktop PC? Both actually...

8  
10

# Altech NRG Thunder

Good things do come in small packages.

**Altech** ★  
[www.altech.com.au/nrg](http://www.altech.com.au/nrg) @  
**\$1,599** \$  
Small; looks good; fast; ✓  
good value.  
Noisy; ✖  
poor hard disk.

**SPECIAL FEATURES** i  
Small form factor  
Full powered



Small form factor PCs usually prove limiting in some way, whether it's how much you can fit inside or the maximum spec of components that can be used without overheating. But we were impressed with Altech's new NRG Thunder system.

It's based around SilverStone's diminutive Sugo SG05 chassis, which is about the same size as a Shuttle XPC. However, while the number and size of internal components might be limited, the limits on their performance are lifted. Venting is on every surface bar the base.

Our only concern was the noise from the three fans (front, CPU and graphics card) that audibly whoosh when idling and under load.

The processor is a beefy Core i7 750, which is overclocked from a stock 2.67GHz to a sizeable 3.6GHz. It's flanked by 4GB of Corsair 1600MHz DDR3 RAM and a 500GB Hitachi hard disk. The latter lets the side down

though and is a major performance bottleneck. It would be far better to plump for a 2TB drive as this provides performance and capacity — but it also gets hotter and that could cause overheating issues.

The motherboard is a Mini-ITX DFI LAN Party P55-T36, which offers good performance and reliable overlocking. The FSP 300W PSU looks very small but happily provided enough power in our testing.

We'd expect such components to run any powerful 2D application thrown at it — providing a better hard disk is used. It scored 10,561 in

3D Mark Vantage thanks to the XFX Radeon 5770. This suggests it will play every game on the market.

Gamers at LAN parties should love it as it's easily the most powerful small form factor we've seen. Just be sure to get a better hard disk. Also note that the warranty is a rather poor one-year return-to-base.

Nick Ross



Pint-size power is the order of the day with the Altech NRG Thunder.

# Win a Digital Home Makeover.

**\$50,000 prize pool up for grabs!**



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Each month D-Link will select 2 lucky entries (1 in Australia and 1 in NZ) based on your answer to the question, "Why do you think your home needs a digital makeover?"

Prizes would include LCD Digital TV, Home Theatre Surround Speakers, Notebooks, Media Streamers, Wireless Routers, IP Cameras and much more. ALSO someone from D-Link will come out and get your network running **ALL FOR FREE...**

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Building Networks for People



# Sony Cyber-shot DSC-TX7

1080HD video and great stills... too good to be true?

**Sony Australia** ★  
[www.sony.com.au](http://www.sony.com.au) ●  
**\$599** \$

1080 HD video; rugged build; huge, clear 3.5in LCD. ✓

A tad expensive; fiddly controls. ✗

**SPECIAL FEATURES** i  
 3.5in touchscreen  
 iSweep Panorama Mode  
 10fps at full 10.2MP  
 Hand-held Twilight  
 AVCHD movie mode (1,920 x 1,080@60i)



Following on from the success of the TX1, the TX7 takes things a bit further. Still with 10MP (which is plenty), the TX7 introduces greater image quality and an all-round approach for both digital stills and video.

The body is the now standard design with slide-up lens cover. With the aid of a folding optics system, the 4x zoom lens stays neatly hidden within the body. The Carl Zeiss Vario-Tessar lens has a 35mm equivalent of 25-100mm zoom, giving users a good range for both landscapes and portraits.

The rear of the camera is dominated by a 3.5in touchscreen LCD. The screen quality was excellent and we had few problems using it, even in direct sunlight. Because of the reliance on the touchscreen, there are very few buttons, dials or levers on the TX7. What there are though could have benefited from being made slightly larger.

Perhaps the most outstanding

feature of this camera is its ability to record 1,920 x 1,080 60i AVCHD video with stereo sound. While most digicams take HD video, it's usually 720p at 30 fps. The TX7 does AVCHD at 17Mbps/s, which is good for its size.

iSweep Panorama is another great feature, as described previously with the TX1. Users just tap the main mode screen to start the function then simply pan the camera for 258 degrees (there's an indicator onscreen) and the TX7 automatically stitches the pano together.

The optical image stabilisation comes in handy to keep things steady under most shooting conditions while the Handheld Twilight function ensures greater dynamic range

and far better exposures in stills. Suited to scenery or stationary objects, the camera takes six shots in less than a second at different exposures and combines them to create a shot taken in low light with low noise. Voila, instant HDR images.

The TX7 is a great buy if you're happy to fork out the cash. But with features like this, you will get your money's worth.

**Christopher Zammit**



# Creative Vado HD 3rd Gen

An improvement on the original?

**Creative** ★  
<http://au.store.creative.com> ●  
**\$228** \$

Decent image quality; nice screen. ✓

Still only 720p; still photos barely adequate. ✗

**SPECIAL FEATURES** i  
 Still image capture  
 2in LCD screen  
 Mini-HDMI port

The original Creative Vado didn't fair too well in our pocket camcorder roundup last year (December 2009). With a few improvements and more storage, Creative Labs is hoping that the third gen will hold its own against the likes of Kodak and Sony.

With only 720p HD resolution, it already falls behind the competition such as Sony's Bloggie that supports full 1080 resolution. Video quality is good for its size and its price, but as in our roundup, there are better choices out there. The lack of image stabilisation (still!) is a major oversight that should have been rectified. The Vado does include a tripod mount to get around this problem but it defeats the purpose of having such a small and portable device.

Sound, on the other hand, is greatly improved over the original. Sounds are louder and clearer with a greater range. Like the Kodak Zi8, the Vado gives the option to add an external stereo microphone via the headphone jack,

which allows for better sound qualities. Still, as with the tripod, it defeats the purpose and shouldn't be necessary.

The screen however is better than others in the category with a good-sized 2in LCD (640 x 240 pixels) that is reasonably visible in bright light.

A Mini-HDMI port is a welcome bonus but you have to buy a separate cable. Conversely, the flip-out USB connector is still there for transferring files to your PC for viewing and editing.

The Vado also does still images but the quality is not great. They look not much better than what you would get from your phone. We'd only use it in the event we had nothing else at hand. The Vado isn't a bad product; it's just not the best in its category. We recommend either the Sony Bloggie or the JVC Piccio. They're about the same price with better features and quality.

**Christopher Zammit**



**7  
10 Fuji Xerox WorkCenter 4250**

Good performance and lots of features.

Fuji Xerox 

[fujixeroxprinters.com.au](http://fujixeroxprinters.com.au) @

**\$3,299 \$**

Solid: departmental-grade MFD. ✓

No scan-to-PC software. 

**SPECIAL FEATURES** 

### Duplex printing and scanning

Simultaneous scan and print

Standalone scan and print

Optional fax

The solidly built WorkCenter 4250 is a true multifunction in that it can scan without interrupting a print job and pause printing to allow photocopying: important considerations for a device intended for departmental or large workgroup use.

That's also reflected by the 500-sheet tray and 100-sheet bypass tray (a second 500-sheet paper tray and a 20,000-sheet feeder are optional), and the 100-sheet ADF on the scanner. Finishing and faxing are other options that were not installed on the review sample. As has become commonplace in this category, the 4250 is primarily controlled via a large colour touchscreen. That's good for everyday use, but administrative functions are more conveniently performed via the built-in web interface.

Software and documentation (for Windows, Mac OS X and Linux) is spread over five CDs. Windows 2

print drivers were not included but can be downloaded from the Fuji Xerox web site. The software bundle comprises Nuance's PaperPort SE 11 for managing scans, OmniPage SE 4 OCR, Image Retriever 7 Pro, and PaperPort Image Printer.

Since the 4250 scans to a predetermined network location such as an FTP server or a SMB share, PaperPort isn't as useful as it is when it can initiate scanning. The front-mounted USB port allows the connection of a thumb drive as a scanning destination.

The first page of our test document emerged in 13 seconds, with the following sheet appearing less than two seconds later. The nominal print speed is 43ppm.

Text was very smooth and crisp, showing why there's still a place for laser technology even in these days of inkjet manufacturers boasting 'cheaper than laser' per-page costs.

**Stephen Withers**

**True  
multifunction  
capabilities  
on offer.**



# BLACKOUT!

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**APC**  
by Schneider Electric



5  
10

# Boxee 0.9.20.10711

Not quite ready for prime time.

Boxee **★**  
www.boxee.tv **@**  
Free **\$**

Good UI; extensible. **✓**

Clearly a work in progress. **✗**

**SPECIAL FEATURES** **i**  
Social networking support

Boxee is a cross-platform media player that we tested under Windows 7. It's still in beta, and while some aspects are well polished there are still some rough edges.

The basic idea is to play all your content, whether it's locally stored or online. Some features are in the core software, while others are delivered through 'apps' (plug-ins).

As we've come to expect with this category, the user interface is designed for 'lean back' use, and it does a good job with a few keys. Mouse control was somewhat laggy, and it was easy to overshoot a list item or to click when an adjacent button was still active. Infra-red remotes are said to be supported given suitable hardware.

One concern is that the integration with sites such as Flickr and Facebook requires you provide the Boxee web site with your login details.

A major problem with the version we tested is that feeds selected on the Boxee site did not show up in the

application. Reports from other users suggest it is an inherent issue.

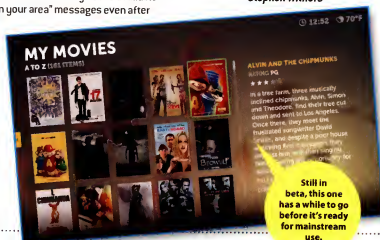
There seems to be no provision for automatically fetching queued content during off-peak times to make the most of your download quota.

Other shortcomings include the absence of BitTorrent support, and the too-frequent appearance of "some content may not be available in your area" messages even after

identifying our locale. The Boxee-curated TV show library revealed just two shows, only one of which was available to Australian users.

We can see why Boxee is developing a following, but it still needs work (including official support for local content sources) before it's ready for mainstream use.

**Stephen Withers**



Still in beta, this one has a while to go before it's ready for mainstream use.

5  
10

# MediaPortal 1.1.0 RC1

Media centre software for the tinkerer.

MediaPortal **★**  
www.team-mediaportal.com **@**  
Free **\$**

Open source; extensible. **✓**

May require substantial configuration effort. **✗**

**SPECIAL FEATURES** **i**  
Active user  
Developer community

MediaPortal is an open source media centre for Windows. It runs on XP SP3 and later, with some restrictions. We tested it on Windows 7.

Be prepared for some tweaking, as the default settings may not work. One example is that trying to play a DVD gave a black screen until we changed to the Microsoft DTV-DVD decoder.

The documentation is primarily web-based and seemed patchy.

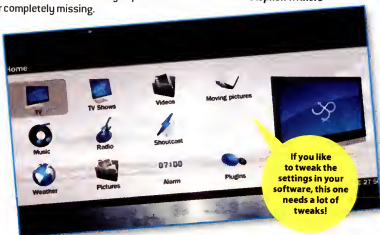
While MediaPortal allows live TV viewing, none of the four tuners we had on hand would work with the program. The program's architecture allows the TV server to run on a separate computer to the main software, which may be useful in some situations.

MediaPortal has some interesting extras including a weather module that with support for Australian cities, though not using Bureau of Meteorology data. The satellite view showed Western Europe regardless of the selected city.

If your interest is watching online videos, you'll need to install a plug-in. We tried one called Online Videos that supports the usual suspects including YouTube, and it worked after a fashion, though black screens (ie. audio only) and "error getting URL" or "unable to play" messages were common. Thumbnail images from some sites were incorrectly duplicated or completely missing.

Some MediaPortal users and developers may take issue, but the program doesn't seem to have progressed significantly since I tried it three years ago. It shows promise but is more suited to the tinkerer than the person that just wants to load and go. Version 2 is under development, giving us something to look forward to.

**Stephen Withers**



If you like to tweak the settings in your software, this one needs a lot of tweaks!

The ground-breaking hardware is finally playing catch-up with its software.



PREVIEW!

# iPhone OS 4 Beta

Multi-tasking, at last!

Apple

www.apple.com/au

Free

Multi-tasking; app folders; threaded email.

No more iPod pop-box; 3G owners don't get multi-tasking.

## SPECIAL FEATURES

Spell check  
Camera zoom  
Game center

Of all the new features in iPhone OS 4, multi-tasking is easily the most exciting, at long last bringing it on par with other smartphone platforms.

Double-clicking the home button brings up a dock tray with currently-running apps, but it's not a free-for-all in terms of programs that can run in the background. Apple has limited true multi-tasking to specific types of apps to minimise resource hogging and battery consumption, including audio, VoIP and location-based services.

Other apps that you have open will also be available from the dock, but instead of running in the background, they'll be 'paused' until you open them again. The upshot is that since the app is already open, you don't have to wait for it to load from scratch. The exception is apps that are completing a task such as sending an email or downloading a file — these will run in the background until complete.

We'll have to wait and see how effective the multi-tasking is in practice, as none of our apps had been updated to support it. In theory, however, it will mean that Skype will

finally be useable as a full-fledged phone replacement (so long as you have a Wi-Fi connection) as you can receive incoming calls without needing to have it running in the foreground. You'll also be able to stream audio from internet radio apps in the background and switch to other programs while having a navigation app open without it losing your GPS position.

The only casualty to the new multi-tasking feature is the iPod pop-up control box that used to appear when you double-clicked the home button. It still appears when you double-click the home button from the lock screen, but from anywhere else you'll need to launch the iPod app to change tracks.

The user interface is more or less the same, save for two small (yet welcome) changes. You can change the background of the home screen from the standard issue black to any photo in your image library, and you can organise applications into folders to make them easier to find — a boon for those with pages and pages of apps. In typical Apple fashion, creating a new folder couldn't be easier —

simply drag one app icon onto another, and it will automatically create a new folder using the app category as the default name of the folder (but you can name it whatever you like).

As with multi-tasking, most of the other new features aren't revolutionary, it's really more of a case of Apple playing catch-up. The introduction of Bluetooth keyboard support let us write part of this review with an Apple Wireless Keyboard; other small tweaks include threaded email, a unified email inbox, built-in spell check, the ability to add playlists, camera zoom and in-line video playback on web pages. The one unique feature is the new Game Center, which is something of an Xbox Live for the iPhone in that it lets you play games against friends and earn achievements — unfortunately, it wasn't functional at the time of writing.

Bad news for 3G owners: an update will be available, but it will be missing several features (including multi-tasking). 3GS owners get the lot, while original iPhone owners get nothing.

Jenneth Drantia

## 91\* Mbps Wireless-N Access Point

Ideal for Video Streaming and File Transfer

- 5 operating modes
- 90 mW power for extended range

Just **\$115**

Dealer inquiries welcome

\*Real world tests at 300 Mbps connect speed



FreeNet Antennas

www.freenet-antennas.com/uwn

# Best apps

There's an app for pretty much anything you want to do. Here we take a look at our favourite ones.

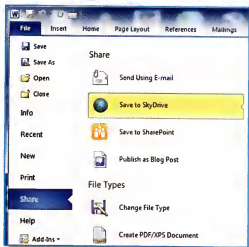


## Microsoft Office 2010

Office makes it up into the cloud.

The latest and most radical version of Microsoft's Office suite goes on sale to businesses this month and to the public next month. Office 2010 is radical in different ways to version 2007, which introduced the UI redesign that featured the polarising ribbon interface. Office 2010 has finally hooked the suite into the cloud, and for some of us here at APC who have been testing the beta version for several months, one of its new features has radically changed the way we work. Office 2010 lets you save documents directly to Microsoft's SkyDrive and while at first it might seem clumsier and slower than saving them to a hard disk, the benefits of being able to open those documents from anywhere on the web quickly become apparent — so much so that one staff member now exclusively uses the free 25GB SkyDrive for his document storage. Microsoft has also added cloud-based editing of Word, Excel and Powerpoint documents. The web-based apps look better than those in Google Apps but come with some annoying restrictions (ie, no comments in Web-based Excel) which show Microsoft is still trying to ensure primacy for its desktop apps.

See page 78 for pricing details • Microsoft • [www.microsoft.com](http://www.microsoft.com)



## Autodesk Homestyler

Autodesk's Homestyler home designer software comes from a major commercial CAD/CAM company and looks, acts and feels like a commercial application. What's the catch? There isn't one. We figure Autodesk is using Homestyler as its cloud-based experiment. It's drag-and-drop design software that lets you design homes with complete floor plans, rooms, doors and furnishings and visualise the results in 3D. It's as good as a desktop app.

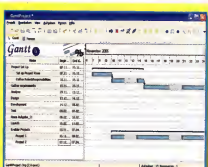
Free • Autodesk • [www.homestyler.com/home](http://www.homestyler.com/home)

## Evernote

Evernote users are fanatical about it. It's a note-taking and capturing app that dumps all your notes (voice & text), screen clippings and whatever else you can capture into a giant unstructured online database searchable by tags. But the power of Evernote is that it has downloadable clients that synchronise it with just about every platform: Windows, Mac, Android, Blackberry, iPhone/iPod and more. It makes Evernote about the only truly universal way to access your data and work on it from any device anywhere. Brilliant.



Free, \$5 a month for 500MB • [www.evernote.com](http://www.evernote.com)



## Gantt Project

One of the things we hate about many online project tools is that, well, they don't look like Microsoft Project at all. Gantt Project is the exception, a kind of open source version of MS Project with proper Gantt and PERT charts. It even imports and exports MS Project files. Unless you need the sophistication of Microsoft's product for seriously large and complex projects, Gantt Project should handle the vast majority of your project scheduling needs.

Free • Gantt Project • [www.ganttproject.biz/](http://www.ganttproject.biz/)

# App Store

**Peter Dockrill** scours the App Store and reviews the best apps available for the iPhone and iPod touch.



## Art Of Blur

One of the consequences of everybody now having a camera phone in their pocket at all times is the prevalence of decidedly average and mundane photographs: sorry, but it's true! A nice way to jazz up any such image is to provide a little "enhanced" drama and intrigue — in a word: blur. With a little selective blur work, courtesy of Art Of Blur, you'll be able to make any photo deliver a bit more flair and polish (and present your subject in a more flattering or exciting manner).

## TeamViewer

Remote control applications for PCs (whereby you control one PC from another over the internet) have truly gone mainstream with the success of consumer packages like GoToMyPC and LogMeIn. TeamViewer (which is available in a free consumer app or paid business version) offers the same remote functionality — but now you don't even need a computer to control your PC — just your iPhone. A truly must-have app if you ever need access to your computer when out and about.



## Hysteria Project

Part game, part interactive horror movie and part (admittedly) mixed success, the stylish and award-winning Hysteria Project is ultimately a choose-your-own-adventure thriller-style game where everything you see has been filmed. You're asked to "pay close attention to the video clips" before choosing specific actions at specific points. As such, the "gameplay" can be frustrating and feel limited, but it's amazing how much tension they can cram into a 3.5in screen. Recommended for Blair Witch Project fans.

Free • rockifone.com • [www.rockifone.com](http://www.rockifone.com)

Free • TeamViewer • <http://teamviewer.com>

\$2.49 • Bulkipix • [www.bulkipix.com](http://www.bulkipix.com)

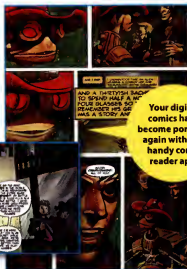
# Comic Reader Mobi

Your complete run of the Uncanny X-Men is now portable.

Ever since digital comics first appeared (meaning digital versions of conventional paper comic books, graphic novels, manga etc.) there's been a significant limitation with the concept — one which greatly reduced its practicality and appeal. Sure, it's a great idea to have a digital version of Superman #1 — with value-added zoom and navigation functions — but the whole "reading comics on a computer screen" just doesn't work for me. How can you truly zone out to read Spiderman while you're sitting at a desk? Notebooks are similarly cumbersome and obstructive for this most leisurely and decadent of pursuits! But in this age of smartphones, iDevices and the iPad, digital comic browsing from the comfort of your

couch/bed/floor is now an inviting possibility. At \$17.99 Comic Reader Mobi is decidedly pricey for an app, but it's also the most advanced of the readers we've seen, supporting a broad range of digital comic formats. One unique and pretty amazing feature is the ability to selectively magnify speech and thought balloons by themselves — a very neat touch (literally). The separate, free ComicSync application is required for your PC or Mac and lets you easily sync your comics over Wi-Fi.

\$17.99 • Ty Landercasper • <http://comicreader.mobi/>



Your digital comics have become portable again with this handy comic reader app.



# BEST HDTVs FOR SPORT

If a TV can do sports well, it can do anything. So with the World Cup about to start, **Jenneth Orantia** explains what makes a TV good for sport.

Events like the soccer World Cup and State of Origin rugby league make great benchmarks for the performance of a TV as a whole — if the TV can render the fast-paced action of a soccer pitch or footy field without noticeable motion blur, then it will happily handle anything else you can throw at it.

Which is why we've focused on highlighting the TVs that will deliver sport better than others. In addition to bringing you a spectacular World Cup tournament from South Africa — or in the case of State of Origin footy, the first 3D broadcasts of sport in Australia — these TVs will also show off movies, games and all the things you love to watch.

If you held off from buying a TV last year, you'll be pleased to know that you'll be getting a lot more for your money in 2010.

This year's lineup from all the major vendors introduces more new technology than any other year before it, including 3D, internet access and USB recording, as well as enhancements to picture processing technology that has pushed contrast ratios as high as 10,000,000:1.

Of course, having more features to choose from also makes the buying process more difficult. Having a good understanding of what each of the specs mean and how they make a difference will help you make a decision as to which features you want and which ones you can do without.

## BEST FOR SPORT: PLASMA VERSUS LCD VERSUS LED

Plasma has traditionally been the best technology for handling

motion in sports broadcasts, as it has a faster response time (the time it takes for a pixel to change colour) and a higher refresh rate than LCDs. LCDs, on the other hand, have long been notorious for motion blur, and have lagged behind plasma when it comes to contrast ratio and black levels.

While plasmas are advertised as having response times of a fraction of a millisecond, LCDs typically have a refresh rate of 4-8 milliseconds. LCD displays that offer faster motion processing (measured by frame rate) like 100Hz and 200Hz help to eliminate most of the motion blur in LCD, and some models do it better than others.

If that wasn't confusing enough already, LED TVs introduce a third category to choose from, although

strictly speaking it's more like a high-end LCD TV that uses LED backlighting or edge-lighting rather than the standard CCFL backlight. The main benefits of LED are a thinner hardware design and lower power consumption, however HDTVs that have a full LED backlight (such as the LG LX9500 and the Panasonic S25 series) can use a technique called "local dimming" to produce better black levels and a higher contrast ratio — more akin to a plasma — which in turn results in a more dynamic picture.

When it comes to watching sports, Rodney Balech, buyer for the visual category at Dick Smith, recommends going with a plasma or an LCD with a faster frame rate. "Plasmas are great, as they refresh quite fast, and some of them have a 600Hz Sub Field. If you're looking





at an LCD, I do suggest buying something with at least 100Hz refresh rate, because anything lower than that and you will probably notice a bit of jitter and motion blur."

Australian broadcast TV transmits at 50 frames per second (or 50Hz), and by doubling or quadrupling the frame rate, LCD TVs can display a smoother picture — especially important when there's a lot of movement in the scene, as there is in sports. For 100Hz TVs, this works by inserting a new frame in between the existing 50 frames to double the amount of frames per second; for 200Hz, there are three new frames between each original frame.

Jan Ergen, product manager for television at Sony, believes that faster motion processing, rather

than a fast response time, is the essential ingredient for watching sports. "For any sort of movement across the screen, whether it's sports, a news ticker, or an action movie, a higher frame in a television (being 200Hz or 100Hz) will definitely provide a smoother viewing experience for consumers. In the instance of the World Cup, it's the ideal solution because there's less of a gap between the soccer ball moving across the screen."

This year, Sony has decided not to publish the response times of its latest HDTVs, and this is a direction that Panasonic is also taking, despite producing both plasma and LCD panels. "Response times have largely been replaced with panel speed in terms of 100Hz, 200Hz, etc. In terms of native or inherent panel response times, it's not really

something that's quite so relevant," says Matt Pearce, product manager for VIERA at Panasonic.

When it comes to the plasma versus LCD debate for watching sports, Pearce champions plasma as the ideal technology. "In terms of the principal benefits of plasma, there's the big screen — 42 inches and above — and there's the superior contrast and superior moving picture resolution, which will result in the best performance for sport, action and movies."

Warren Kim, product manager for the home entertainment business unit at LG, is more circumspect with his advice. "From my perspective, the choice is up to the customer. I think we are up to the point where it is hard for us to single it out. For plasma, you can achieve a bigger screen than LCD

and LED at the moment. And with LED, they have sorted out the trail issue and the picture can be quite dynamic, but some people might say it's colour saturated. So it really depends on everyone's tastes."

#### BLUE MATTERS FOR SPORT

While it's easy to get hung up on the different panel technologies, it's more likely that you'll shop for a new TV based on size. There's no sweet spot when it comes to getting the best size for a plasma, LCD or LED, so it's really a personal preference as to how big or small you want it. That said, the size you decide on may dictate the type of panel you end up choosing — anything under 42 inches, and you're limited to LCD and LED, as plasmas are only available in the larger sizes. Also, the smaller the



size of the panel is, the less likely you are to notice the difference between HD and Full HD — it's no coincidence, then, that most vendors don't offer Full HD in televisions smaller than 32 inches.

Plasmas have always had the edge on LCDs when it came to bigger sizes, so while you can get a Sony BRAVIA EX700 in the 60in size, plasmas can be had as large as 65in. That said, Panasonic's new 65in plasmas won't be available until September and October this year, so if you're trying to buy the largest TV you can before the State of Origin and the World Cup, the largest plasma you'll be able to find is Samsung's 63in Series 7 HOTV. By the numbers, you'll get a better deal on plasma. The 60in BRAVIA EX700 is available for \$5,699, while the 63in Samsung Series 7 — which is also 3D-enabled — sells for \$4,499.

Another logistical point worth considering — especially when it comes to watching the State of Origin and the World Cup with a group of friends — is the viewing angle of the screen. This dictates the angle that you can still see the picture when you're not sitting directly in front of it. A limited

viewing angle isn't a problem with the latest HDTVs from the major vendors, but it's certainly something to think about if you're buying an LCD panel from a lesser-known brand. Technologies like IPS (in plane switching) ensure the widest viewing angle possible on an LCD, so it allows more light out at different angles.

#### DO I REALLY NEED FULL HD FOR SPORT?

The resolution of the TV is probably the easiest spec to digest. If it's a high-definition television, it's either HD (1080i/720p) or Full HD (1080p). The bigger the panel is, the more it will benefit from having a Full HD resolution, as it will have more information to fill the screen. That said, a Full HD television doesn't reach its maximum potential unless it is fed a Full HD signal, which at the moment is limited to Foxtel HD, Blu-ray discs and high-definition games consoles.

Anything less than that (either 1080i or standard definition), and it's up to the TV's processor to reformat the picture to fit the screen. Television programming that is broadcast in high definition,

including the State of Origin and the World Cup, is done so in 1080i, so strictly speaking, you won't need a Full HD TV to get the best quality for these sports events.

But it's unlikely that you'll be buying a new TV just to watch sports. Given that Full HD doesn't hold the price premium that it used to, Oick Smith's Balech advises buying Full HD regardless. "Even though you won't see an immediate benefit if you're watching sports right now, it's definitely recommended to go with Full HD because there is a huge difference. And, going two or three years down the track, you will be getting sport in Full HD."

#### CONTRAST RATIO

TV vendors love playing the numbers game, and assuming that bigger numbers are always better is a trap that most unwary shoppers fall into. The dynamic contrast ratio of a HDTV, which refers to the deepest blacks and brightest whites that a panel can display, is one of the main numbers used to lure in buyers, as it's a metric that's easily compared. LG is currently leading the game with its INFINIA LX9500, which advertises

a dynamic contrast ratio of 10,000,000:1, and the Panasonic V20 isn't far behind at 5,000,000:1.

The problem with relying on the dynamic contrast ratio is that there is no industry standard for measuring it. Sony has taken the unprecedented step this year of not advertising contrast ratios at all. "The danger with publishing dynamic contrast ratio with enormous numbers is that it means nothing to the consumer. And there's actually no tool available to the manufacturer to measure those numbers; they're just an estimation," says Ergen. "We don't believe it's an accurate way of measuring picture quality."

Oick Smith's Balech agrees. "There's no uniform way of measuring contrast ratios, so the way Samsung measures it is very different how Panasonic measures it, and again very different to LG or Sony. A manufacturer declining [to mention contrast ratio] is a good idea."

What's important to note here is that it's not contrast ratio in itself that's irrelevant; it's attaching a number to it that is misleading for consumers. "Contrast ratio is very important, but the best way to check that is to look at the blacks and whites on the TVs. You can see with your own eyes what the difference is between a high contrast ratio and a low one," says Balech.

When it comes to sport, a better contrast ratio allows for a more dynamic and accurate picture. "In sporting events, obviously no single blade of grass is the same colour — there are thousands of variations of green within a typical football pitch. A better contrast ratio allows the panel to really accurately show the depth of colour in the image," says Panasonic's Pearce.

#### INTERNET AND USB RECORDING

Internet access and USB recording have both become a staple feature of the flagship HDTVs in 2010, but strictly speaking, neither of these are completely new. Samsung and Panasonic both offered limited internet access on last year's HDTVs, while LG has previously offered PVR functionality.

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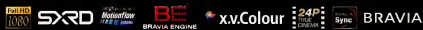


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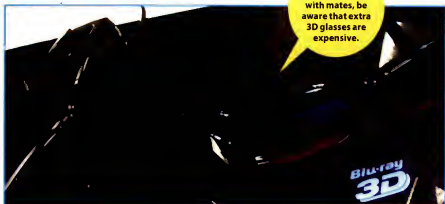
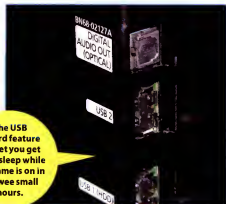
VPL-VW85



VPL-VW200

If you're watching a match with mates, be aware that extra 3D glasses are expensive.

The USB record feature will let you get some sleep while the game is on in the wee small hours.



What's changed this year with regards to internet access is that more TVs are now offering Wi-Fi as built-in or with an optional dongle, and each of the vendors have announced partnerships with content providers to provide streaming video and live widgets. Panasonic has partnered with Yahoo!7 for its PLUS7 catch-up TV service, LG has an exclusive partnership with BigPond TV for accessing BigPond Movies, and Sony has launched its BRAVIA Internet Video service, which consists of 1S Wired that include Yahoo!7, SBS, Wired and eHow.

The only vendor that has announced any World Cup-specific internet content is Sony, which, as a global partner of FIFA and a local partner with SBS for the World Cup, is in a great position to offer this. At the moment, this simply consists of a FIFA World Cup 2010 Countdown widget available as one of the BRAVIA internet widgets, but Ergen was keen to emphasise the potential for more exclusive content down the track.

With all the soccer matches for the World Cup being shown late at

night and in the wee hours of the morning, the USB record feature being offered in many of the high-end HDTVs is certainly something that will come in handy. Samsung, Panasonic and Sharp are each offering PVR-style functionality via a simple USB interface — simply plug a USB flash or hard drive into the side-mounted port and select the show you want to record using the TV's built in electronic program guide.

### SOUND REPRODUCTION

Watching the sports is as much an audio experience as it is a visual one. HDTVs typically have two speakers that pump out 10 or 15 watts each, which is enough to drive a small- to mid-sized room. Some of the higher-end models offer surround sound modes and built-in subwoofers, but you're more likely to notice the benefits of this when watching a movie rather than watching the sports. "For the World Cup, you're really not going to get amazing surround sound from the content — it's really just the commentator and some background noise in the crowd," says Dick Smith's Balech. Still, if you

want to connect it to an external audio system, an optical digital output is a standard feature on all of the latest HDTVs that will let you plug it into most modern home stereo systems.

### 3D TV

And let's not forget the three-dimensional elephant in the room. While the World Cup is being shot in 3D, at the time of writing, SBS had not yet confirmed whether it would be broadcasting it in 3D in Australia. However, just as we were going to press, Channel 9 announced that it would be broadcasting the three matches in the 2010 Harvey Norman State of Origin in 3D — the first 3D live free-to-air broadcast in Australia, and indeed, the world.

If you'd like to watch the State of Origin at home in 3D, your options are limited to the Samsung Series 7 plasma and LCDs, and the LG INFANIA plasma and LCDs. Sony and Panasonic will also be releasing 3D HDTVs this year, but these won't be available until the second half of the year. When it comes to watching 3D, you'll have to factor in the need to wear glasses to see the 3D effect. Since 3D HDTVs only ship with one

or two pairs of glasses per box [with extra sets of glasses available for \$150-\$200 each], you'll need to factor this in if you're planning on watching the State of Origin with a group of people.

### SEE IT IN PERSON

Ultimately, while you can get a reasonably good idea of a TV's chops by looking at the spec sheet — as well as reading the reviews here in APC — there's no substitute for checking out the TVs in person. As well as the technical specifications, the aesthetics of a TV may sway you between one model and another. You may also have a preference for a more saturated colour tone compared to one that displays colours naturally.

Panasonic's Pearce has some good advice: "Essentially, what we always recommend consumers do is to go into the store. Try and find a store that closely matches the way you consume TV: it might be brighter, it might be darker, it might be from three metres away and it might be from five metres. Try and replicate the viewing experience at home and then evaluate the TV on those parameters."

## UNDER REVIEW



Sony BRAVIA KDL5HX700



Sony BRAVIA KDL60EX700



Panasonic VIERA TH-P50V20A



Panasonic VIERA TH-P50U20A



LG INFANIA LX9500



LG INFANIA PK750



Samsung UA55C7000



Samsung PS63C7000



- i** 200HZ MOTIONFLOW
- ★** BRAVIA INTERNET VIDEO
- ★** LIVE SPORTS SURROUND MODE



**\$3,899**

**8 10**

## Sony BRAVIA KDL55HX700

www.sony.com.au

- ✓ Large size; extra-smooth motion processing; dedicated sports & audio modes
- ✗ CCFL backlighting; no USB record feature.

The HX700 is the hero HDTV that Sony is pushing for the World Cup, and it's not hard to see why. Maxing out at 55in, it's one of the largest LCDs available, and it provides a good price per inch that's comparable to high-end plasmas.

At this price point, Full HD resolution is a given, but it also comes with Sony's premium 200Hz Motionflow technology, now in its third generation and the best LCD motion processing technology on the market. This uses a proprietary algorithm to insert three new frames between every existing one, making the action-packed sporting field look as smooth on the panel as it does in person.

Unlike the faster frame-rate technologies from other vendors, this picks up motion in the diagonal axis, as well as the vertical and horizontal axes, and it includes Sony's unique Image Blur Reduction technology for correcting any motion blur that may have been captured by the camera in the original 50 frames of source content.

Other technologies that recommend the HX700 for sports include the MPEG Noise Reduction, which removes the block noise usually found in fast-moving standard definition scenes, a dedicated Sports mode that optimises the Motionflow, white balance and colour reproduction, and a Live Sports Surround Mode that replicates the atmosphere of a sporting event by throwing the sound out at different angles — great for replicating the crowd cheering after each goal.

The panel also offers a 178-degree viewing angle, which is more than wide enough for friends or family sitting perpendicular to the TV on either side to watch the game without any quality loss.

If you're after an HDTV with all of the latest features, however, the HX700 leaves something to be desired. It uses a CCFL backlight rather than the newer LED backlighting, there's no 3D option, and it doesn't have a USB recording feature.



- i** EDGE LED BACKLIGHTING
- ★** PRESENCE SENSOR
- ★** LIVE SPORTS SURROUND AUDIO MODE

**\$5,699**

**7 10**

## Sony BRAVIA KDL60EX700

www.sony.com.au

- ✓ Extra-large screen size; eco-friendly features; dedicated sports & audio modes.
- ✗ Slower 100Hz motion processing; expensive

If you want life-sized sporting action, you've come to the right place! At 60in diagonal (which converts to a whopping 152.4 centimetres), the EX700 is the largest LCD currently available, but you'll certainly be paying for the privilege of owning it.

The premium is mostly related to the screen size — since it's not a common panel size for LCD, there's a disproportionate price gap between this 60in model and the 52in model below it, to the tune of two thousand dollars.

Sony is pitching the EX700 as its 'ECO' range of HDTVs, with Edge LED backlighting and a Presence Sensor that automatically turns the TV picture off if it doesn't detect anyone in the room. Comparing the 46in HX700 and EX700, the latter has almost half the thickness at 65mm, and also consumes close to half the power at 125W.

Edge LED backlighting is different to the Full LED backlighting found in the LG HDTVs. The former is an earlier generation of the technology that situates the LEDs along the edge of the TV set (hence its name), with the main benefits being a slimmer display and lower power consumption — but not much of a difference to image quality. Full LED backlighting, on the other hand, uses a full array of LEDs that can be dimmed in different regions (much like plasma) for deeper black levels and better contrast ratio.

Larger screen size aside, the EX700 falls behind the HX700 when it comes to motion processing, using the slower 100Hz version of Motionflow. It's still a marked improvement over 50Hz LCDs, but it will still display some motion blur when there are rapid changes between frames, like when a footy is flying through the air or a player is dribbling the ball down the pitch. As with the HX700, Wi-Fi is optional, and it offers a Sports picture mode, Live Sports Surround audio mode, and MPEG Noise Reduction.





## Panasonic VIERA TH-P50V20A

www.panasonic.com.au

- ✓ 1,080 lines moving picture resolution; best-in-class motion reproduction.
- ✗ Wi-Fi isn't built-in; no 3D support.

Panasonic's 3D-enabled VT20 series won't be available till June for the 50in model (and October and November for the larger sizes), so for now, the V20 series is Panasonic's premier HDTV out of its 2010 range, and one that's well worth considering if you're looking for an HDTV that will provide the best experience for watching the World Cup.

Plasmas have long been the superior technology for sports and action scenes, and the V20 improves on this further with its 600Hz Subfield Drive — a technology that breaks up each 50Hz frame in a TV signal into 12 individual subframes to create a clearer and smoother image that won't miss a millisecond of the sporting action on-screen.

While Full HD resolution isn't an impressive spec on its own, the V20 also has a 1,080-line moving picture resolution. This means that during high-speed frames — such as kicking a soccer ball across the field — it's still displaying the full 1080 lines on the screen. LCDs and plasmas from other vendors have slower panels that reduce the number of lines displayed to anywhere from 300 to 900 lines during high-speed motion.

Apart from the missing 3D technology, the V20 is every bit as competent as Panasonic's flagship VT20 plasma, with an impressive 5,000,000:1 dynamic contrast ratio, the 600Hz Subfield Drive, and two USB inputs for recording free-to-air broadcasts, playing multimedia stored on a USB drive, and connecting peripherals like a Wi-Fi adapter, webcam and keyboard. The latter two may seem like odd accessories for a TV, but the V20 also comes with Skype built-in for video chat over the internet.

Following Panasonic's acquisition of Pioneer's KURD plasma assets last year, the company has been steadily incorporating Pioneer technologies into its own plasma panels. One of these technologies is the new anti-reflective Louver filter on the V20, which is largely responsible for the huge boost in contrast and black levels.



## Panasonic VIERA TH-P50U20A

www.panasonic.com.au

- ✓ Affordable; fast panel speed; excellent contrast ratio and black levels.
- ✗ No USB recording feature, no internet access.

As one of the entry-level models in Panasonic's 2010 lineup, the U20 misses out on a lot of the newer features like USB recording, internet access and the anti-reflective Louver filter (not to mention 3D support). But if you're on a budget and want the biggest and best quality HDTV for the State of Origin and World Cup, the U20 has lots to recommend it.

Not only is it a plasma panel, which will reproduce the fast-paced motion of a soccer or footy game markedly better than LCDs in the same price range, but it also boasts a 600Hz Subfield Drive, which renders motion on the screen faster than a standard plasma, and faster again than an LCD.

Absent is the Louver filter from Panasonic's pricier plasmas (but using the same Real Black Drive System and Revised Filter of previous Panasonic panels), the U20 has a dynamic contrast ratio of 2,000,000:1, which, while lower than the V20 and VT20, is still a marked improvement over last year's panels in the same price range.

The moving picture resolution (which is the number of lines that are displayed in high-speed scenes) of 900 lines is also an impressive feature for this price point, although it's a hard metric to use for comparison, as HDTVs from other vendors don't advertise this specification.

There's no USB port on-board for recording games or playing content on a USB drive, but like all of the VIERA HDTVs before it, it comes with an SD card slot for playing back stored photos, music and videos.

There's a 7-day electronic program guide built-in for checking the times that each of the games are on, but if you want to record shows, you'll need to look to an external solution such as Panasonic's DVD and Blu-ray hard disk recorders.

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## LG INFINIA LX9500

www.lge.com.au

- ✓ Full LED backlighting, 10,000,000:1 dynamic contrast ratio, 3D
- ✗ No USB recording

To be released this month the LX9500 LCD HDTV boasts a dynamic contrast ratio of no less than 10,000,000:1 — the highest number we've seen advertised yet. It also has a full LED backlight that consists of 1,200 LEDs, a 400Hz TruMotion frame-rate that walks all over Sony's maximum 200Hz Motionflow, and claims to be the first 3D HDTV with full LED backlighting.

As mentioned earlier, the advertised dynamic contrast ratio is an unreliable figure — especially if you're using it to compare HDTVs from another vendor — as there's no industry-standard way of measuring it. That said, comparing the LX9500 with last year's LG TVs gives a better indication of the improvements made. LG's flagship LCDs last year maxed out at 3,000,000:1, so the LX9500's improvement of over 300% should result in a punchier and more dynamic picture that will bring you closer to the action on the soccer and footy fields.

This giant leap in numbers can be credited to the LX9500's full LED backlight, which employs local dimming to allow for the backlight to be turned off in different areas across the screen, resulting in black levels that are virtually indistinguishable from the TV's bezel.

In fast-paced scenes like sports, where there's a bigger difference between successive frames, a faster frame-rate on an LCD helps to reduce the motion blur between frames. Theoretically, then, the 400Hz TruMotion framerate would make the LX9500 the best LCD for sports hands-down — if it really was reproducing frames at eight times the speed of the 50Hz broadcast signal. But the 400Hz number actually comes from the LX9500's 200Hz motion processing frame-rate multiplied by two to factor in the LED's local dimming capability.

Along with the Series 7 plasmas and LCDs from Samsung, the LX9500 will be the only HDTV that will support 3D in time for the State of Origin, and it also comes with built-in access to BigPond TV.



## LG INFINIA 60PK550

www.lge.com.au

- ✓ Gorgeous hardware design, fast motion response, dedicated sports mode.
- ✗ No USB recording; doesn't support 3D

You'll find that the PK750 doesn't have the same 3D capabilities of its LCD stablemate, the LX9500, so you'll be limited to watching the State of Origin (not to mention the World Cup) in 2D if you purchase this particular model.

Not that you'll have much cause for complaint with the PK750's performance. We've yet to see an LCD that rivals the blur-free motion reproduction of a high-end plasma, and in that sense the PK750 comes out ahead with its Full HD plasma panel and 600Hz Subfield Drive for extra-quick motion response.

TV vendors have been coming out with borderless designs for a while now, but the implementation on the PK750 (which it shares with the LX9500) is the best yet, making the screen look larger than it really is.

Mounted on a wall and playing the State of Origin or the World Cup, you could almost trick yourself into believing you're in a corporate box at the ANZ Stadium in Sydney or one of the soccer stadiums in South Africa. If only!

Other features that make the PK750 ideal for sports is the sports AV picture tuning function mode, which tunes the various image settings for optimal sporting playback, and a Clear Voice audio mode that improves the quality of the commentary so you feel like you're hearing it in person rather than as recorded voice through the TV.

Oddly, LG has chosen not to include any PVR functionality into its INFINIA range of HDTVs, despite offering this feature in its premium LCDs and plasmas of last year.

In its place, LG has introduced internet access for the first time via its NetCast portal, which includes exclusive access to BigPond TV. This can be accessed on the PK750 using the built-in Ethernet port or with an external USB Wi-Fi dongle.

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## Samsung UA55C7000

www.samsung.com/au

- ✓ 3D support; 2D to 3D real-time converter; LED backlighting.
- ✗ More expensive than equivalent plasma

As one of the only 3D HDTVs that will be ready in time for the State of Origin 3D broadcast in late May, the Samsung Series 7 LCD already comes out way ahead as a good TV to buy for sports. You'll even be able to watch the World Cup — as well as other 2D television programming and movies — in 3D using the built-in 2D to 3D real-time converter. Of course, the conversion won't be as good as watching content that's been encoded in 3D natively, but it's a good stop-gap until more movies and shows are available in 3D, and it will help you justify paying that little bit extra for the 3D capabilities now.

The good news is that you're actually paying less for a 3D HDTV now compared to the 2D HDTV you could have bought last year. The 40in Samsung Series 7 LCD last year, which didn't have the 3D function, was sold for \$3,299 at launch, whereas the upgraded 40in Series 7 with 3D functionality is available today for \$2,899. The perfect-for-sport bigger S5in version retails for \$4,799.

That said, if you're comparing the current Series 7 LCD with the 3D-less Series 6 model below it, you're actually paying six to eight hundred dollars extra for the 3D feature [although the box does come with two sets of 3D glasses, compared to the single set that comes with most other 3D HDTVs].

But enough about 3D — there are lots of other features in the Series 7 LCD that makes it an HDTV worth shortlisting for the State of Origin and World Cup viewing. As one of the flagship models in Samsung's new 2010 range, all of the bells and whistles have been thrown in, including USB recording, 200Hz Motion Plus, and above average sound quality thanks to the 15W x 2 speakers (most HDTV speakers are 10W only), a built-in subwoofer and SRS Theatre surround sound.

See page 56 for more information on 3D TV and how it works.



## Samsung PS63C7000

www.samsung.com/au

- ✓ Real-time 2D to 3D converter; USB recording; affordable pricetag
- ✗ None.

When it comes to watching the big sporting events of the year, the Samsung Series 7 plasma ticks all the right boxes: Full HD plasma for crisp, life-like motion with a near instantaneous 0.001 millisecond response time, a huge 63in panel — the biggest that's currently available from the 2010 range of HDTVs, and 3D support for tuning into Channel 9's live 3D broadcast of the State of Origin. It's also easier on your wallet compared to Samsung's 3D LCD panels — the S8in Series 7 plasma is available for \$3,499, which is a not-inconsiderable \$1,200 cheaper than Samsung's S5in 3D LCD.

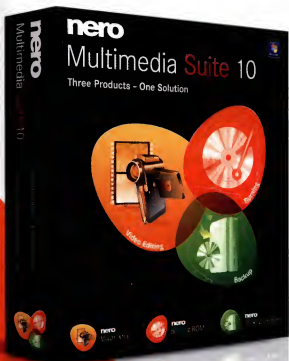
Given the dearth of 3D content currently available, we can definitely see the built-in 2D to 3D converter coming in handy — a feature that automatically converts regular TV programming, movies and games into stereoscopic 3D. This won't have quite the same wow factor as content that's been natively shot in 3D, but it'll still provide more depth and realism than you'd get watching standard 2D programming, and it really will provide the next best experience to seeing the World Cup first-hand.

Like the high-end plasmas from other vendors, the Series 7 plasma comes with 600Hz Subfield Motion for making fast-paced sporting sequences look as smooth as possible, and it also ensures there's no jitter when displaying the all-important sports scores and rolling text along the bottom of the screen. Samsung doesn't advertise the contrast ratios for its plasmas or LCDs, but the combination of the Real Black Filter, Mega Dynamic Contrast Ratio technologies and 3D will make images pop off the screen (literally, in the case of 3D), so it's almost like the matches are happening right there in your living room.

The Series 7 plasma also offers a USB recording function, which works with the built-in electronic program guide so you can set games to record ahead of time.



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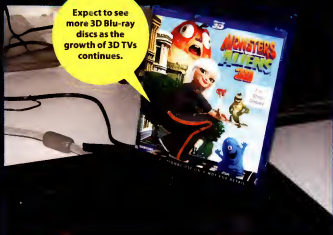
Back up and recover all your personal data in a few easy steps

[www.nero.com](http://www.nero.com)

[www.qvsoftware.com.au](http://www.qvsoftware.com.au)



Finally, 3D TVs will let you watch Avatar in 3D — at home!



Expect to see more 3D Blu-ray discs as the growth of 3D TVs continues.

# 3D TV

## ADDING AN EXTRA DIMENSION

Nick Race looks at how 3D TV works and what's ahead when it hits your lounge room

By now, we've heard endless promises of how 3D televisions are going to revolutionise the way we consume content at home. With the recent success of *Avatar*, *How to Train Your Dragon* and *Alice in Wonderland*, it seems every movie studio, TV production house and TV manufacturer is rushing to recreate that experience for consumers in their loungerooms.

But what are the things to consider if you're looking to buy in to the 3D craze, and how does 3D work?

### TWO EYES FOR SEEING

Humans have the ability to see in 3D thanks to two forward-facing eyes at the front of our heads (some other animals aren't as lucky after all). As our eyes are separated by a few centimetres,

it means that they are seeing a slightly different image. You can easily see this by closing one eye, opening it and closing the other in turn.

These slightly different outlooks on the world provide your brain with two distinct images. When they are combined we gain a sense of depth for three dimensions. This combination system is called parallax stereoscopy. Stereoscopy is the technique used to create images that give an illusion of depth.

Now, the difficulty in showing a 3D image on a flat surface, be it in a movie theatre or TV screen, is that as both your eyes are looking at the same object (the screen), it doesn't have any visible depth; your brain doesn't really have two images to put

together for that third dimension. So the big challenge is: how do you present two different images, one to each eye at the same time, so the brain can combine them into a simulacrum of 3D?

There have been multiple solutions to this problem, some of them very simple.

### CHOOSE YOUR METHOD

3D images have been around nearly as long as photography itself. Some of the methods to view 3D content, specifically still images, can be as simple as a piece of paper or cardboard between two slightly different images that blocks one eye from seeing what the other sees.

The big thing during the '80s was stereoscopy using anaglyph red and blue glasses to create

the illusion of 3D in movies. Most people have experienced content using the glasses with a red filter over one eye and blue over the other, but I'm sure you'll agree the results are often less than realistic.

This method works by shifting the background of the images left in one colour and right in the other, while the inverse colour blocks the other shifted image, giving the impression of separation to your eyes and brain. It works, but it can be clunky.

The next step up from those flimsy paper and cellophane glasses is the use of polarised images with matching polarised glasses. This is what we generally see in cinemas these days, as the results are better than anaglyph (red/blue 3D imaging),



As with any new technology, don't forget to factor in the cost of new peripherals.

but the glasses are still relatively inexpensive. This method works by projecting images for both the left and right eyes at the same time, but with the light for each image polarised differently. A matching pair of polarised glasses are worn by the viewers, which blocks the perpendicularly polarised light from the opposite eye.

The original technology used horizontal and vertically polarised light, but if you tilted your head the 3D effect broke up. Today, most cinemas (and home displays of this type) use circularly polarised light. A different "handedness" is used for each eye, which means you can tilt your head all you like.

All of the methods above are passive stereoscopy methods. No "extra" complex technology beyond the display itself is required to view

it. On the other side of the fence are active technologies, which work in tandem with the display to create the 3D illusion.

Which brings us to the new 3D TVs hitting the market which use liquid crystal shutter glasses to create the 3D effect. In this situation, instead of displaying both images for the left and right eye at the same time (and giving it the opportunity to bleed over to the "wrong" eye), the display alternates the left and right frames. But that still leaves us with the problem of getting the correct image to the correct eye. With this method, the viewer wears a pair of liquid crystal (LC) shutter glasses, which alternately blacks out the view from each eye.

The LC glasses synchronise with the display, and while

the image for the left eye is on the screen, the lens in front of the viewer's right eye is blacked out or darkened. This lets the left eye see the image clearly. For the next frame, the left eye's lens is darkened, allowing the right eye to see its frame. Due to the way that the brain processes these individual frames, the result is a clearer 3D image in full motion, even though the eye's input is a series of alternating still images. This whole method is called alternate-frame sequencing.

The difficulty in using this 3D method is that the screens must be capable of displaying twice the usual number of frames. With PAL TV, that's a minimum 25 frames per second (50 frames per second with interlacing),

then doubled for discrete left and right eye images to 100 frames per second (aka. 100 Hertz). Typically 120Hz rated LCD TVs meet the minimum standards to show clear 3D using LC shutter glasses.

That doesn't mean you can grab any 120Hz TV and go to town, as firstly, the screen must be a true 120Hz refreshed display (many aren't — but count interlacing or other metrics to get a big number), and the TV needs to be able to synchronise with the LC shutter glasses.

Of course, it's not just the TV that needs to be able to keep up with that huge frame rate. The other links in the chain, including PCs and Blu-ray players, also need to be able to feed data at that rate. So that's another thing to buy. **DPG**

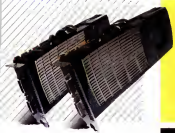
# Best tech

APC's independent reviewers point to the best technologies in the top-selling product categories each month. We only change products when a better one comes along. What you see here is the best technology available on the market right now.

LOOK  
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THESE



Products marked with this stamp are the latest additions to Best Tech.



## Movers & shakers

### Graphics on the Go

With the recent release of NVIDIA's new graphics chips, we're going to see a bit of movement in the video card market. The new chips haven't blown us away,

especially with their high pricing, but having competition at the high end of the market will see both NVIDIA and AMD competing fiercely.

### GENERAL PC

#### NOTEWORTHY

##### Alienware Area 51

NEW

A truly neat machine. Not the greatest value for money, but the design implementation and support are second to none.



\$4,000 > Alienware > [alienware.com.au](http://alienware.com.au)

#### BEST VALUE

##### HP Pavilion PC-090a

A smashing all rounder for the discerning user. This PC has a Core i7 860 and 8 gig of RAM. That's plenty of power for nearly everyone.



\$2,699 > HP > [www.hp.com.au](http://www.hp.com.au)

#### BEST PERFORMER

##### PC Maniacs Terminator X58

A superbly built and specced gaming system. Core i7 920 overclocked, two Radeon 5970 cards: no game can stand up to the Terminator.



\$6,649 > PC Maniacs > [www.pcmaniacs.com.au](http://www.pcmaniacs.com.au)

### PANEL PC

##### ASUS EeeTOP PC ET2203T

For a panel PC, ASUS have hit the nail on the head. Including Blu-ray, 1080 HD screen, SRS sound and touch optimised software.



\$1,699 > ASUS > [www.asus.com.au](http://www.asus.com.au)

##### HP TouchSmart 300 & 600

HP's TouchSmart all-in-one, touchscreen PCs run Win 7 and are the closest thing to the iMac in the PC World. The 300 is the affordable one.



\$1,690 > HP > [www.hp.com.au](http://www.hp.com.au)

##### Apple iMac 27in

A stunning computer gets even better as Apple release the 27in iMac, complete with LED 2,560 x 1,440 display, as well as Core i5 CPU.



\$2,599 > Apple > [www.apple.com.au](http://www.apple.com.au)

### NAS HOME

##### Netgear Stora

This NAS doesn't have the roomiest capacity, just holding two 3.5in drives, but its remote access functions and usability are second to none.



\$399 > Netgear > [www.netgear.com.au](http://www.netgear.com.au)

##### Iomega Home Media Network

When nanna asks you what NAS she should buy, point her to this 1TB NAS designed to store and share images and multimedia across DLNA devices.



\$429 > Iomega > [www.iomega.com.au](http://www.iomega.com.au)

##### Thecus N2200 4TB

This little box has all of the right features for a great home NAS. 4TB of storage, a tiny footprint, DNLA server, iTunes and BitTorrent as well.



\$849 > Thecus > [www.thecus.com](http://www.thecus.com)

## EXTERNAL DRIVE

### NOTEWORTHY

#### Iosafe Solo 500GB



You want bomb-proof? Here it is. This external drive can survive flood and fire, and with a free disk recovery within a year after a disaster, you're safe.



\$275 - Iosafe > iosafe.com.au

### BEST VALUE

#### Toshiba 640GB USB 2.0

This 640GB USB 2.0 Portable External Hard Drives comes with system backup (Windows only), password protection for added security and enhanced software features.



\$199 (640GB) > Toshiba > toshiba.com.au

### BEST PERFORMER

#### WD MyBook 3.0

This 1TB external hard disk drive sports the latest 3.0 speeds. It even comes with a USB 3.0 PCIe card in the box. It's triple the speed of last generations drives too.



\$249 (1TB) > Western Digital > wd.com

## NETBOOK

#### HP Mini by Studio Tard Boontje

Though the internals are quite run of the mill, you'll stand out with the unique layered image finish on this high style netbook.



\$799 - HP > www.hp.com.au

#### Toshiba NB200

It's not the best looking netbook out there, but with a set of full size keys, light weight and 1,024 x 600 and outstanding battery life, you won't be left wanting.



\$749 > Toshiba > www.toshiba.com.au

#### HP Mini 210

Even though its got a low price tag, the performance and design of this model mean its right at the top of the list. Six hours battery isn't bad either!



\$449 - HP > www.hp.com.au

## NOTEBOOK ALL-ROUNDER

#### New MacBook Pro 15in



An Apple fan will appreciate this more than a PC switcher, but the new MacBooks with Core i7 are the best yet. A good battery life really lifts this model.



From \$2,199 - Apple > apple.com.au

#### Compaq Presario CQ41-226TX

\$1,200 buys you a lot of notebook these days! This Compaq model includes a new Core i5 chip, discrete graphics and a high-quality keyboard and screen.



\$1,199 - HP > www.hp.com.au

#### Samsung X460

Thin and light, but with a 2.66GHz Intel Core 2 Duo P9600 processor, 4GB of DDR3 1066MHz RAM, and NVIDIA GeForce 9200M GS graphics.



\$2,999 - Samsung > www.samsung.com.au

## DESKTOP REPLACEMENT

#### ASUS G73Jh

Holy moly! With a Core i7 CPU, 8GB of RAM and a Radeon 5870 graphics chip, you'd be forgiven for thinking this was a gaming desktop PC.



\$2,699 - ASUS > www.asus.com.au

#### Dell Studio XPS16

With one of the best screens we've seen on a notebook, as much customisation as you want and a great design, it's a winner.



\$1,789 - Dell > www.dell.com.au

#### Toshiba Qosmio X500

Weighing in at 4.6kg, with a monstrous 18.4in display, the X500 offers great multimedia, a Core i7 CPU and a gamers graphics card.



\$2,699 - Toshiba > www.toshiba.com.au

## PHONE CONSUMER

#### Sony Ericsson AINO

A super duper phone, capable of streaming media from your PS3 and DLNA network devices over 3G or Wi-Fi. Also comes with a Bluetooth dongle.



\$849 - Sony Ericsson > sonericsson.com.au

#### Nokia 6760 Slide

This side mounted slide out keyboard model is packed with social networking tools, and access to the Nokia Ovi store will keep you busy.



\$479 - Three > www.three.com.au

#### HTC Desire

Goodbye iPhone, hello Desire. This Android phone is the new pinnacle of consumer smartphones. Good performance, a solid experience and lots of apps.



Plan > Telstra > telstra.com.au

## PHONE BUSINESS

#### BlackBerry Storm II



The Storm II is what the original Storm should have been. A good touchscreen experience, plus BlackBerry's market leading email support.



\$799 - Vodafone > vodafone.com.au

#### Nokia E75

Works like a BlackBerry with the new Nokia Messaging push email service. You can configure up to 10 Gmail, Yahoo Mail, Live Mail and other free and hosted email accounts.



\$979 - Nokia > www.nokia.com.au

#### BlackBerry Bold 9700

The new BlackBerry flagship, a tad smaller than the 9600 but with a higher-res screen. Also runs on the regional HSDPA networks of Vodafone and Optus, and Telstra's NextG.



Plan > RIM > www.blackberry.com



## MEDIA PLAYER

### NOTEWORTHY

#### Apple iPod nano

A new long narrow design with an accelerometer that kicks the nano into landscape mode when you hold it sideways. Now in 8GB and 16GB models.



\$199 (8GB) - Apple - [www.apple.com.au](http://www.apple.com.au)

### BEST VALUE

#### Sony Walkman X

This may be sacrilegious, but we think Sony's new Walkman X is better than the top iPod, with a 3.2in OLED touchscreen, noise-cancelling tech and Wi-Fi.



\$649 (16GB) - Sony - [www.sony.com.au](http://www.sony.com.au)

### BEST PERFORMER

#### Archos Si

A tour de force — the most stunning media player yet, plays HD content and has in-built GPS, all running on Android. In 8GB to 500GB versions.



\$445 (8GB) Archos - [itechinternational.com](http://itechinternational.com)

## MP3 DOCKS

#### Altec Lansing activ AIR M812

Unlike most other iPod docks, the dock and speaker connect to each other wirelessly up to 30m away. Produces a warm, well-balanced sound.



\$799 - Altec Lansing - [www.alteclansing.com](http://www.alteclansing.com)

#### TDK NX-04CD remote & Mic

Audio performance blows similarly priced docks out of the water, and looks great. But it can also play music off USB drives and SD cards.



\$300 - TDK - [www.tdk-media.com](http://www.tdk-media.com)

#### B & W Zeppelin

Simply the best-quality iPod dock speaker system around, even if not the most expensive. So good you need 320Kbit/s tracks to get the most out of it.



\$1,300 - Bower-Wilkins - [www.bower-wilkins.com](http://www.bower-wilkins.com)

## GPS

#### TomTom XL340

A great beginner GPS. This model has a huge screen, visible in the day with an easy to use interface and clear, loud speaker.



\$399 TomTom - [www.tomtom.com](http://www.tomtom.com)

#### Uniden TRAX 5000

We love Uniden because of its philosophy of delivering on the fundamentals — bigger screens, easier navigation, better 3D maps.



\$349.95 Uniden - [www.uniden.com.au](http://www.uniden.com.au)

#### TomTom GO 930

The top-of-the-line TomTom delivers traffic messaging, intelligent live routing, FM transmitter, voice-recognition and text-to-speech.



\$849 TomTom - [www.tomtom.com.au](http://www.tomtom.com.au)

## COMPACT CAMERAS

#### Sony Cyber-shot DSC-WX1

The little brother of the TX1, the WX1 deserves a mention for the fact that it has all the same features for over \$100 less. You just get 10MP instead of 14MP.



\$449 - Sony - [www.sony.com.au](http://www.sony.com.au)

#### Kodak M320 Easyshare

The M320 is cheap, easy to use and produces great images. Takes a picture as well as a camera twice its price.



\$180 - Kodak - [www.kodak.com.au](http://www.kodak.com.au)

#### Sony Cyber-shot DSC-TX2

NEW

Heaps of features including touchscreen, sweep panorama and HD video, paired with great image quality.



\$599 - Sony - [www.sony.com.au](http://www.sony.com.au)

## DSLR CAMERAS

#### Canon EOS 5D

Though the price tag is heart stopping, the 5D is one of the best cameras out there, bar none.



\$4,799 + lens - Canon - [www.canon.com.au](http://www.canon.com.au)

#### Canon EOS 550D

Easy to use, the 550D offers HD video and heaps of features, including the best LCD screen on the market.



\$1,349 - Canon - [www.canon.com.au](http://www.canon.com.au)

#### Nikon D90

This is just sexy! The first DSLR with HD video, the D90 is the best non-professional camera you could get without sending yourself broke.



\$1,699 - Nikon - [www.nikon.com.au](http://www.nikon.com.au)

## HD CAMCORDER

#### Sony Bloggie

Records video at Full HD resolution for under \$300. Good-quality video, face detection, SMP stills and 360-degree video capability make this a category leader.



\$299 - Sony - [www.sony.com.au](http://www.sony.com.au)

#### Panasonic HDC-S060

Great-quality HD video in a tiny form factor with all the gadgets, including touchscreen and face detection for automatic stills.



\$799 - Panasonic - [www.panasonic.com](http://www.panasonic.com)

#### Sony HDR-XR520V

Want the best consumer camcorder out there? With 240GB HDD storage capacity, 12MP still images and so much more.



\$1,699 - Sony - [www.sony.com.au](http://www.sony.com.au)

## PHOTO FRAMES

### NOTEWORTHY

#### D-Link DSM-210

25cm Wi-Fi photo frame that streams net content and can accept content via a "widget" located on the PC desktop.



\$499 - D-Link > [www.dlink.com.au](http://www.dlink.com.au)

### BEST VALUE

#### Kodak P720 Touch Digital

Kodak's entry-level photo frame, with a good quality 7in screen and the excellent Quick Touch Border which makes it really easy to navigate menus.



\$140 - Kodak > [www.kodak.com](http://www.kodak.com)

### BEST PERFORMER

#### Samsung SPF-105V

Almost like a mini-TV with an impressive monitor and able to play MP3s and video files, plus lots of slideshow effects.



\$399 - Samsung > [www.samsung.com/au](http://www.samsung.com/au)

## HDTV

#### LGPS70

Features in-built "Time Machine" DVR recording. For this model, the PS70, just add a hard disk.



\$3,299 for 50in - LG > [www.au.lge.com](http://www.au.lge.com)

#### Panasonic VIERAG15 Neo

This represents the new state-of-the-art in plasmas, with brighter LCD-like pictures and faster motion image response.



\$3,299 - Panasonic > [www.panasonic.com](http://www.panasonic.com)

#### Panasonic Z Series

A super thin plasma that's lighter than others, with Full HD wireless transmission. This series sports all the bells and whistles.



\$5,999 - Panasonic > [panasonic.com.au](http://panasonic.com.au)

## TV TUNER

#### Haupage MiniStick-HD

The size of a small USB key, it's the smallest Freewiew-tuned digital TV stick in Australia — great quality, cheap, and perfect for notebooks.



\$69 - Haupage > [www.newmagine.com.au](http://www.newmagine.com.au)

#### Kworld DVB-T 395UR

A basic HD tuner card that allows you to watch HD digital TV on your PC or notebook. It's not flash, but it works well, is portable and convenient.



\$79 - Kworld > [www.kworld.com.tw](http://www.kworld.com.tw)

#### AverTV TwinStar PCI-E

This is the best HD tuner on the market. Twin digital tuners for simultaneous record/playback, solid software and MCE compatible drivers.



\$159 - Altech > [www.altech.com.au](http://www.altech.com.au)

## DISC PLAYERS

#### Sony PlayStation 3 80GB

Yes, it's a games console, but it also doubles as a Blu-ray player that's as good as any standalone devices on the market. It's the same price as some of the better ones, so do your sums.



\$699 - Sony > [www.sony.com.au](http://www.sony.com.au)

#### Kogan Blu-ray Player

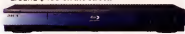
Basic, affordable. Plays back good quality HD and upscales DVDs. Now supports BD-Live (Profile 2.0) so it can receive internet content and upgrades. Good buy at \$249.



\$249 - Kogan > [www.kogan.com.au](http://www.kogan.com.au)

#### Sony BDPS350

Superb HD playback quality and does great upscaling of DVDs to high definition. Unlike the \$1,799 Pioneer, available for around \$400 on the street.



\$400 - Sony > [www.sony.com.au](http://www.sony.com.au)

## DVR

#### PlayStation 3 PlayTV

Is it a console? Is it a PVR? Now it's both. The PlayTV offers a simple interface and good-quality recordings but chews through the PS3's hard disk drive quite quickly.



\$169.95 - Sony > [www.sony.com.au](http://www.sony.com.au)

#### Dvico TiVo M6600-N

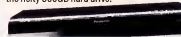
There's little this won't do with dual HDTV tuners, 1TB internal storage, network playback, full 1080p as well as HDMI 1.3a support.



\$699 - Dvico > [www.dvico.com](http://www.dvico.com)

#### Panasonic OMR-BW850

This 2nd-gen Blu-ray recorder is a tempting all-in-one option for any lounge room. Includes 240 hours of HD recordings onto the hefty 500GB hard drive.



\$2,199 - Panasonic > [www.panasonic.com.au](http://www.panasonic.com.au)

## ROUTER

#### Netgear Rangemaster

A dual-band gigabit router built specifically with a huge list of features, including a separable Guest network for visitors, and a media server.



\$299 - Netgear > [www.netgear.com.au](http://www.netgear.com.au)

#### TP-Link TLWR941ND Wireless N

A Draft 2.0 N router with MIMO, using three adjustable antennas for speeds of up to 200Mbps. Performance is decent and the documentation is good.



\$129 - TP-Link > [www.anyware.com.au](http://www.anyware.com.au)

#### Linksys Dual-N WRT610N

It does dual-band Wireless N (5GHz and 2.4GHz), is one of the best performers in testing and looks great. Comes with Linksys' superb LELA network setup wizard.



\$290 - Linksys > [www.linksys.com.au](http://www.linksys.com.au)



# how it's done

TODAY'S TECHNOLOGY EXPLAINED

# HTML5

## THE FUTURE OF THE APP?

**David Braue** explains why HTML5 is the coolest new development about to revolutionise the web.

HTML5 is the newest version of the HTML markup language that has powered the web since day one. What's spectacularly different about HTML5 is that it supports video and audio playback, which means that if your browser is HTML5-compatible you no longer need Adobe Flash or Microsoft Silverlight plug-ins to view multimedia content.

Although currently in Working Draft stage and not expected to be finalised until 2012 — HTML5 promises to be a major change both in the form and function of the humble web page. Apple has already thrown its weight behind HTML5, and YouTube has created a special, experimental HTML5 version of its video player.

### NEW FUNCTIONALITY

It's not just video and audio playback that's new, though. As would be expected for a major update, HTML5 includes a range of new features and functions, and both simplifies and expands the usage of HTML 4 elements.

For example, `<nav>` and `<footer>` tags explicitly handle web site navigation blocks and text at

the bottom of a web page. Newly constructed `<audio>` and `<video>` tags simplify the embedding of multimedia content. HTML5 documents begin with an explicit `<!DOCTYPE html>` declaration, and the standard has subsumed the previously-separate Web Forms 2.0 effort.

There is also explicit support for inline scalable vector graphics (SVG) and MathML (Math Markup Language), as well as new elements that simplify the creation of specialised layout elements that have previously only been possible using workarounds, such as a new `<canvas>` element for 2D drawing, `<figcaption>` to add captions to images, `<header>` and `<footer>`, `<time>`, `<command>`, `<article>` and more. There are also new form controls including dates and times, `<email>`, `<url>` and `<search>`.

More than any previous version of HTML, version 5 goes to great pains to specify standards for ancillary components necessary to build working online applications that also offer offline functionality. There are specifications for an offline Web SQL database, a broad range of new scripting APIs and

extended document object model (DOM) interfaces, document editing functionality, a geolocation model, application cache, cross-document messaging, drag-and-drop features and more. HTML5 even includes support for 'Web workers' — background threads spawned by a Web application, running in parallel to the main page, and co-ordinated by message-passing.

### TO HTML5 COMPATIBILITY

If HTML5 sounds less like a page description language and more like an application development and execution environment, you're thinking along the right lines. The HTML5 specification is being edited by Google's Ian Hickson and Apple's David Hyatt: two representatives of powerful organisations with a vested interest in non-proprietary web standards.

Both companies see HTML5 as a major step forward in building a Web applications infrastructure — and both have been early proponents of the standard. Apple, for example, introduced rudimentary HTML5 support in its Safari 4.0 release in June 2009, and all browsers now support a

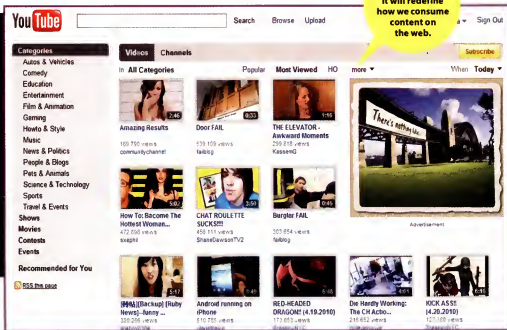
majority of HTML5 tags. Google has publicly signalled its commitment to HTML5 and has all but ceased development of its Google Gears offline application framework as it shifts to HTML5.

For now, compliance with HTML5 is something of a moving feast. Different browsers are at different stages of compliance, and the ever-changing nature of HTML5 means that a browser offering a particular level of support one day may not be so compliant the next.

### SHIFTING TO HTML5

There's always some lag time between the passage of a new standard and its wide adoption, but widespread early support for HTML5 and the industry's rapid push towards web apps means the majority of functions are likely to be implemented well before the W3C signs off on the final standard.

This is great news for companies like Apple, which has coped significant criticism for refusing to support Adobe's ubiquitous Flash application framework. Sceptics suggest Apple has intentionally blocked Flash functionality to prevent web-based Flash apps



## LINKS

W3C's HTML5 specification  
[www.w3.org/TR/html5](http://www.w3.org/TR/html5)

Test your browser's HTML5 compatibility  
<http://html5test.com>

Gallery of sites using HTML5  
<http://html5gallery.com>

HTML5 implementation help  
<http://html5doctor.com/>

Apple's iPad ready HTML5-using sites  
[www.apple.com/ipad/ready-for-ipad](http://www.apple.com/ipad/ready-for-ipad)

from compromising the role of the iPhone and iPad App Store. Apple, for its part, cites technical issues with Flash and went so far as to ban even encapsulated Flash apps like those that can be created using Adobe's recently-released Creative Suite 5.

With its clear intention to support HTML5, however, Apple may simply be holding out for the standards-based approach, preferring to incur user wrath than to open the gates for unchecked proliferation of Adobe's closed, proprietary Flash standard on its mobile devices. Expect even more HTML5 trash-talking when the release of iPhone OS 4 features an updated Webkit rendering engine and Mobile Safari Web browser.

There are other questions, too: namely, whether HTML5 can become a drop-in replacement for Flash, which has emerged from its roots as a low-footprint vehicle for web animations to become a comprehensive web app and video delivery environment with a massive developer following.

Whether those developers will abandon their investment in Flash remains to be seen;

however, those hoping to tap into the fast-growing iPhone/iPad ecosystem will certainly see the value of shifting to HTML5, even as a parallel measure. In April, Apple began listing 'iPad ready' sites by CNN, Reuters, the New York Times, Vimeo, Flickr, National Geographic, and others that offer HTML5-based video and content suitable for iPad users.

Shifting the whole world away from Flash will take time: there is no indication of just how hard it will be to retool Flash applications for HTML5, and Adobe is hardly likely to facilitate the process. Voluntarily shifting to the new standard will help developers build applications that run across the iPhone as well as other mobile and standards-compliant fixed devices, but Flash's widespread support isn't going to go away overnight.

Ray Valdes, research director in Gartner's Internet Platforms and Web Services team, addressed the HTML5-Flash issue in an extensive blog post [<http://bit.ly/a7B0q5>], in which he noted that "the working subset of HTML5 is nowhere near the power of Flash. There are many

advanced effects that are only available in Flash or Silverlight or Java... However, a significant majority of Flash content on the web does not need to be in Flash... It is possible that 90-95% of an average enterprise's needs could be met by HTML5."

In other words, Flash content has only been developed in Flash because there was no other way to deliver it at the time. As HTML5 creeps into common usage and developers undertake natural upgrades to their apps, it's entirely possible that many will take the opportunity to switch platforms. HTML5 is, after all, going to be around for a very long time so anybody wanting to do work on the web will need to be familiar with it.

The good news for users though is that the transition will be more or less seamless: just keep updating your browser, and you'll have access to all the latest HTML5 features as they're implemented. HTML5 may not replace Flash overnight, but the inevitable emergence of premium HTML5-based content will help bring it into the mainstream well ahead of the W3C's timetable. **BTW**

## HTML5 ON YOUR BROWSER

Drop by <http://html5test.com> to see how your browser rates in terms of HTML5 compliance: on our Mac test system, Firefox 3.6.3 was rated compliant with 101 out of a possible 160 elements. Apple's Safari 4.0.5 and the iPhone's Mobile Safari both rated a 113, while Google Chrome 5.0.342.9 beta scored 137 (NB: the test is a convenient reference to HTML5, since clicking on section links jumps to the relevant section on the W3C site).

Safari was stronger in categories such as offline web applications, section elements, forms, text-level semantic elements and grouping content elements, while Firefox bettered Safari in user interaction, geolocation and audio support. Chrome had no geolocation support but scored perfect marks in video, offline web applications, section elements and grouping content elements.

Microsoft Internet Explorer 8.0.7600.16385 under Windows 7, on the other hand, barely rated: it scored just 19 out of 160, supported all 8 storage-related tags and 7 of 19 user interaction elements but little else.

# G4 masterbuilder

HOW TO BUILD THE ULTIMATE PC



One of the joys of computing is building your own PC from a collection of parts you have carefully chosen yourself. Each month a Master Builder will configure a PC for a specific task and pricepoint, recommending the best components for the job.

## A gaming system for hardcore gamers

We asked gun overclocker **James Trevaskis** to build the ultimate gaming PC. He came back with something completely over the top, as expected.

As a member of the Team Australia overclocking group James 'youngpro' Trevaskis knows his way around a computer. The following is a system he has designed to be

used with liquid nitrogen, but he has modified it for this month's Master Builder to create his ultimate gaming system.

### CORE SYSTEM

SYSTEM COST  
**\$7,532**

#### CPU

Intel Core i7 980X — **\$1,450**

The fastest consumer CPU on the planet with a stock speed of 3.33GHz, 6 cores and 12 threads. Overclock to 4GHz and we have a monster.

#### CPU COOLER

Noctua NH-U12P — **\$85**

The Noctua NH-U12P is the perfect match for the CPU. Packaged with a silent fan, this is both a high-performance and deadly-quiet alternative to the noisy stock cooler.

#### MOTHERBOARD

Gigabyte X58A-UD9 — **\$799**

Gigabyte has really come to the party with the

UD9. It features four PCI-Express slots and dual 8-pin power connectors, plus provides enough space to run up to four graphics cards and features the latest revisions of SATA3 and USB3.

#### RAM

G.Skill Perfect Storm 2200 3 x 2GB — **\$500**

The G.Skill 2200 kit is based on the unbelievable Elpidia Hyper IC. They are designed to run up to 2,200MHz with tight memory settings. This kit will maximize the memory bandwidth in my system.

#### GRAPHICS

3 x MSI GTX480 — **\$840 each**

That's not a misprint, I have decided to take advantage of my new X58A-UD9 and put 3 MSI GTX480s in my system. These cards will run in SLI and will give an unmatched gaming experience.

#### AUDIO

ASUS Xonar Essence STX — **\$210**

The Essence STX is more than a sound card,

it's a complete experience. It features replaceable OP-AMPs [operational amplifiers] and the highest quality of components. Did I mention it can output 124dB?

#### HARD DRIVE 1

Corsair Force Series F100 — **\$559**

This is the cream of the crop when it comes to SSD drives, it boasts 285MB/s and 275MB/s read and write speeds respectively. The model I have chosen is the 100GB version and will be used as my boot drive.

#### HARD DRIVE 2

2 x Western Digital Green 2TB — **\$180 each**

For my storage requirements I like the 2TB drives from Western Digital. I have decided to put two of these drives in my system. After all, I do need extra space on my machine when I take it to LAN parties to show it off.

#### OPTICAL

Pioneer BDR205 Blu-ray Writer — **\$250**

There is one name that stands above all the





Gun  
overclocker  
James Trevaskis  
brings you this  
month's pro build:  
a \$10K gaming  
machine.

## EXTRAS

### MONITOR

**Dell UltraSharp 3008WFP — \$1,999**

I would be doing the system injustice if I didn't combine it with a stunning monitor. The Dell 3008WFP is just that, totally stunning. It has a native resolution of 2,560 x 1,600 and a 3000:1 contrast resolution. Once you try this monitor you can never go back.

### KEYBOARD

**Razer Lycosa Gaming Keyboard — \$94**

After using this keyboard for a week I was addicted. From the gentle incline of the keyboard to the backlit keys, it is keyboard perfection.



competitors in the optical drive market and that is Pioneer. The offering I have chosen is the BDR205, which includes a 12x Blu-ray writer.

### POWER SUPPLY

**Antec TPQ 1,200W — \$330**

Antec has reannounced itself to the world in the past 12 months with the release of the TPQ 1200W. This modular power supply delivers more than enough power to drive our CPU and three graphics cards.

### CASE

**Lian Li PC-P80 — \$469**

As motherboards increase in size to accommodate more components, case manufacturers need to respond with cases to fit them. The PC-P80 easily fits all my components and looks sexy while doing it.



### MOUSE

**Razer Lachesis Gaming Mouse — \$90**

Our system simply would not be complete without a gaming mouse. I really like the balance on the Lachesis, along with the programmable buttons and 4,000dpi it is a formidable mouse.

### OPERATING SYSTEM

**Windows 7 64-bit — \$375**

Microsoft has done a great job cleaning up the sloppy Vista to make an OS that feels like Vista should have. Windows 7 has a sleek interface, performs much faster and the 64-bit version lets us utilise all of the RAM.

**Total with extras: \$10,090**

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## Simply Fast: The New GIGABYTE X58A- series of Motherboards

The GIGABYTE X58A-series delivers unparalleled performance with SuperSpeed USB 3.0 technologies from NEC and SATA Revision 3.0 technologies from Marvell mounted directly onboard; this is superior to a makeshift add-on card solution that could create a bottleneck at the PCIe slot when 2 or more SATA 6Gbps devices are attached to it. GIGABYTE X58A motherboards also provide an unprecedented 3x USB power boost on all USB ports for even the most power hungry USB devices. There are also all the usual technologies from GIGABYTE that include Ultra Durable™ 3, AutoGreen, DES2 and GIGABYTE Smart 6 for easier and smarter PC system performance, power and security management.

### GIGABYTE 333 Onboard Acceleration USB 3.0 – 10x Super Speed



World's first USB 3.0 logo  
certified solution from NEC

GIGABYTE X58A motherboards feature the next-generation SuperSpeed USB 3.0 interface from NEC that provides a 10x data transfer speed boost over USB 2.0. Data transfer between the PC and USB 3.0 devices is enhanced through dual-simplex transfer for simultaneous bi-directional data flow.



### Faster Data Transfer



### Better data transfer efficiency



Data transfer between USB device and PC is bidirectional. Data is both sent and received between USB device and PC simultaneously, hence improving the data transfer efficiency.



Data transfer between USB device and PC is only one direction. Data is either being sent or received at any one time – can't be sent and received simultaneously.

### USB 3x Power Boost



Ultimate compatibility with 3x  
USB power boost

GIGABYTE X58A motherboards introduce a unique new USB power design that effectively triples the power output from all USB ports. The result is unequalled USB device stability due to sufficient power delivery from a single USB port. This also frees-up USB ports for additional USB devices.



### Seagate® Barracuda® XT Hard Drive Speed and capacity, uncompromised.



fastest SATA 6G Interface. It is the ideal choice for high-performance PC enthusiasts like PC gamers, non-linear video editors, graphic designers and other professionals whose work demands top performance.

With 2 TB of storage space, you have all the capacity you need for today's space-hungry PC gamers, 200 hours of 1080p, high-definition MKV movies, or up to 45 hours of 1080i, HDV/PCP/encoded, HD video for post-production activities.

And with a 5 year warranty on the Barracuda XT hard drive, you'll have years of worry free operation.

## The Intel® Core™ i7-980X Processor Extreme Edition

Unlocked, unleashed, and uncompromised performance.

Thanks to the latest ultra-threaded, overlocking-enabled and the amazing combination of smart features, including Intel Turbo Boost Technology and Intel Hyper-Threading Technology, the new 2010 Intel® Core™ i7-980X processor Extreme Edition is Intel's most tunable, capable and fastest PC processor ever. Combined with the Intel® X58 Express chipset, the Intel Core i7 processor Extreme Edition delivers unprecedented bandwidth and memory performance, including an integrated memory controller with three channels of DDR3, two DIMMs per channel, and up to 25.6 GB/s bandwidth at 1066 MHz.

### Wield the Ultimate Gaming Weapon

The Intel Core i7 processor Extreme Edition can not only take on today's most complex and immersive games, but it's also powerful enough to handle tomorrow's gaming advances. Experience smoother and more realistic gaming made possible by distributing AI, physics, and rendering across six cores and 12 threads, bringing 3D gaming to life for the ultimate desktop experience.

### Breakaway Performance for Digital Media Creation

Intel's top-of-the-line processor takes digital content creation to a whole new level, enabling faster video transcoding and image rendering, plus incredible performance for photo retouching and photo editing. The Intel Core i7 experience total creative freedom that's limited only by your imagination.

### Key features

- **32nm Intel Microarchitecture:** Next-generation dynamically scalable microarchitecture enables greater power efficiency and performance.
- **Intel® Turbo Boost Technology:** Dynamically increases the processor's frequency as needed by taking advantage of thermal and power headroom when operating below specified limits.
- **Intel® Hyper-Threading Technology:** Delivers two processing threads per physical core for a total of 12 threads for massive computational throughput, allowing highly threaded applications to get more work done faster.
- **12M Intel® Smart Cache:** Faster access to your data by enabling dynamic and efficient allocation of cache to match the needs of each core for efficient data storage and manipulation.
- **Overclocking-enabled:** Unlocked multiplier allows you to easily increase the core and memory frequencies independently from the rest of the system, improving your ability reach high core and memory clock speeds that go beyond the processor specifications.

### Intel® X58 Series Motherboards



# GIGABYTE

\*Available features vary by model. Please visit the GIGABYTE website to see a complete listing of motherboard model features.

For additional information about the GIGABYTE X58A series motherboards, please visit the GIGABYTE website at <http://www.gigabyte.com.tw/Products/Motherboard/Default.aspx>



<http://www.facebook.com/pages/GIGABYTE-Motherboard-Tech-Column/2090010719>



[info@gigabyte.com](mailto:info@gigabyte.com)

# ACCELERATE YOUR PC

Make your PC leaner, cleaner and faster than ever with our performance-enhancing guide. **Mike Williams** reveals the tricks you need to know.

**H**ere's the shocking truth: dubious default settings, wrong configurations and wasteful processes are sapping many of your PC's valuable resources. And what's to blame? Windows.

Windows is deceptive. After you've installed it, the OS happily connects to the internet, downloads all the necessary drivers, configures itself and there you go — one stable PC all ready to roll. It couldn't be easier or more convenient. But the problem is, Windows doesn't come optimised for performance. And it's much the same story for most of your applications: they're all set up to work, not roar along.

So what's the answer? We say take control and don't trust Windows' default settings. Sure, they'll yield a machine that is stable and dependable, and to a degree that's the point.

That's what the average user wants, and it's what Microsoft and PC makers need. By keeping configurations nicely conservative they'll keep PCs the world over ticking along happily and calls to their technical support divisions low.

But APC readers aren't average PC users. We're demanding users who want to squeeze every drop of performance out of our computers. So, join us as we declare war on default settings and automatic configurations. Take control of your PC and release its full potential!

## REMOVE PROCESSES

A good first step when speeding up your system is to identify and remove the processes that are currently wasting its resources. Windows runs a slew of processes by default. Some are essential to the functioning of your

machine, but many others are unnecessary resource hogs.

Process Hacker (a Task Manager-type utility with many more features) is perfect for sorting the wheat from the chaff, so go grab a copy from <http://processhacker.sourceforge.net>.

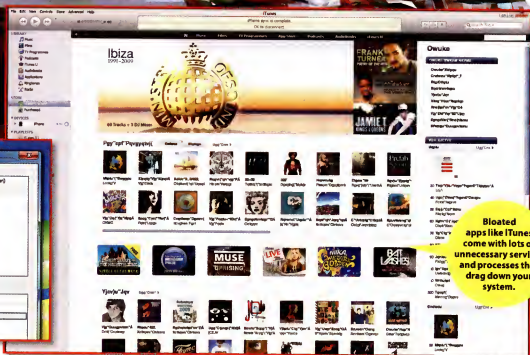
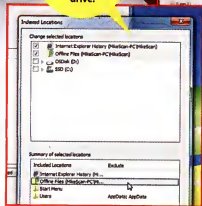
Launch the program and right-click the Name column header to define what information it should display. Ensure that 'Name', 'PID', 'Pvt Memory', 'CPU', 'I/O Total', 'Username', 'Description', 'CPU History', 'Handles' and 'I/O History' are all checked. Now click 'OK' and you'll see two small graphs — CPU History and I/O History — that give a visual pointer as to how each running process has been behaving in the past few seconds. This is helpful information: if your hard drive has been thrashing for some unknown reason, for example, scan the I/O History column. Anything showing spikes of activity is a suspect.







Give Windows Search less work to do and it won't spend so long thrashing your drive.



feature then it's unnecessary. Similarly, IP Helper is useless for those without an IPv6 network; Offline Files has no purpose if you don't use its sync features; the Tablet PC Input Service is only for tablet PCs; and the Secure Socket Tunneling Protocol Service is generally only useful if you're connecting to a virtual private network (VPN).

Potentially redundant third-party services include Apple Mobile Device and iPod Service, which come with iTunes and can be safely turned off if you don't have an iPod or iPhone. Bonjour Service is only required if you need iTunes or Safari to discover network services; Nero BackItUp Scheduler belongs to Nero Burning ROM, and can be turned off if you're not using the back-up tool; and Nvidia Stereoscopic 3D Driver Service is useless unless you have the 3D glasses needed to use Nvidia's 3D Vision technology.

Think carefully about the services that can be safely disabled on your PC. [And we do mean carefully: get this at all wrong and you could prevent Windows from loading, even in Safe Mode, so if in doubt about something, leave it alone]. Then go to work turning off the unnecessary components.

In some cases you may be able to do this by uninstalling a program from Control Panel. That's where you'll find the Nvidia Stereoscopic 3D driver, for instance. But with most options you'll have to launch the Services applet ('services.msc') and tweak the settings yourself. The safest approach is to double-click

the redundant service and set its Startup Type to 'Manual'; it won't be launched automatically, but will still be available if another service requests it. The problem is that this can leave some services running unexpectedly, so if you're 110 per cent sure that something isn't in any way system critical — Apple Mobile Device, say — then set its Startup Type to 'Disabled', and you can be sure it won't be launched again.

### CREATE A TURBO MODE

Some of the most resource-hungry Windows services shouldn't be turned off permanently. We found that Windows Search consumed more than 250MB of RAM on our test system, for instance. That's annoying, but we'd miss the service if it weren't there. The SuperFetch caching service can grab plenty of RAM, too, and it isn't always effective, but on balance it's still worth keeping it running.

You wouldn't want these services to disappear forever, then, but what about if you created a batch file to turn them off just

temporarily? This could free up a considerable amount of RAM. You may then get better performance out of a game or some other heavy-duty application that you're trying to run, and you could use another batch file to restore the services when you're done.

To give this a try, launch 'Services.msc', double-click each service you'd like to disable and make a note of its short name. This is labelled as 'Service name' on the dialog. Now create a file called Turbo-On.bat that uses the net stop command (as shown below) to close each service. Feel free to leave SuperFetch enabled if it helps the particular app that you're trying to prioritise, and of course you can add as many other services or programs as you like, just as long as they're not system-critical. Here we've included a sample line that would shut down Skype's services:

```
net stop wsearch
```

```
net stop sysmain
```

```
"program files\skype\phone\skype.exe" /
```

Then create a second file called Turbo-Off.bat that uses the net start command to relaunch everything, as here:

```
net start wsearch
```

```
net start sysmain
```

```
"program files\skype\phone\skype.exe"
```

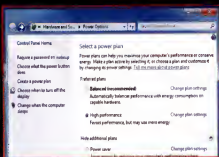
### FACT FILE

Your PC will be faster if you stop using sluggish apps and turn to faster alternatives. So forget IE and try Chrome ([www.google.co.uk/chrome](http://www.google.co.uk/chrome)), replace Media Player with VLC ([www.videolan.org/vlc/](http://www.videolan.org/vlc/)) and make Foxit Reader ([www.foxitsoftware.com](http://www.foxitsoftware.com)) your PDF reader of choice.

3  
STEPS

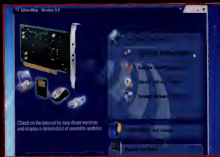
# ESSENTIAL CONFIGURATION TIPS

Three simple steps to get your PC running faster.



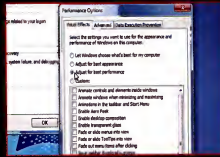
## 1 CHECK THE POWER PLAN

Your choice of power plan has a huge effect on performance. Click Start, type Power, launch the Power Options applet and make sure you're running the highest performing power plan.



## 2 UPDATE THE DRIVERS

Updating your drivers may help system speed. We used DriverMax ([www.innovative-sol.com/drivermax](http://www.innovative-sol.com/drivermax)) to locate and install several updates, and our system benchmarks rose by four per cent.



## 3 HELP THE GRAPHICS CARD

If your graphics card is underpowered, turn off 'Windows' eye candy. Right-click 'Computer', select 'Advanced System Settings' > 'Performance Settings' and click 'Adjust for best performance'.

Store these files somewhere safe and create shortcuts to each. Next, right-click the shortcut, click 'Properties > Shortcut > Advanced' and check 'Run as administrator'.

Now, whenever you need the maximum possible performance, launch the 'Turbo-On.bat' shortcut to free up some RAM and system resources. Then fire up 'Turbo-Off.bat' when you're done to restore normal operations.

## PRIORITISE PROGRAMS

So far we've concentrated on absolute ways to divert your PC's resources. But what about those programs that you must leave running but aren't system-critical — such as mail apps? It's possible to recover resources from these applications, too, although it may take a little extra work to do so.

Let's assume that you always need to have Outlook running in the background for email purposes. By default this may grab processor time on any of your CPU cores (assuming you've got a multicore CPU). You can restrict the app to just one, freeing up the others for different programs.

In Process Hacker, right-click the 'Outlook.exe' process, click 'Affinity' and ensure that only 'CPU 0' is checked. Repeat the process with other non-essential programs that you have launched (nothing security-related though, and no Windows components). Their performance will fall a little because they're restricted to one CPU, but the rest of your apps should now benefit, as they get improved

access to the rest of your system's cores.

Another way to make other apps run quicker is to reduce the CPU and I/O priority of a background process. Windows does this itself with the Windows Search indexer and other components so that they don't interfere too much with foreground apps, and you can apply the same trick yourself to limit a program's impact on your system.

In Process Hacker, right-click the process you'd like to change (avoiding security tools, Windows components and anything system-critical) and select 'Priority > Idle'. Then right-click the process again and select 'Miscellaneous > I/O Priority > 0' to make sure that it gets the least possible share of your system's attention.

You could also increase the priority of more important processes to High, which may mean that they get more CPU time, but be careful — doing so is risky. It's more likely that your programs will block Windows' own processes from running, and that could result in your PC crashing or locking up.

Don't expect too much from these techniques, though, especially if you don't have many background processes. With just Outlook and a browser running in the background on our machine, our tests showed that priority and affinity tweaking delivered only a two to five per cent improvement in foreground application performance.

However, if your PC is packed with busy background processes, this can be a very

useful way to manage them. If you see good results then you can change your program shortcuts so that you're able to launch them using the command-line 'start.exe' tool, which can set their priority and affinity without Process Hacker's help.

It may also be worth trying Process Lasso ([www.bitsum.com/prosper.asp](http://www.bitsum.com/prosper.asp)), which assigns and manages process priorities automatically. It's a commercial product, but it's reasonably priced (from \$20), and there's a free trial available so you can see if it works.

## FURTHER BASIC RULES

If you've followed our advice so far, you'll have discovered and tamed resource-hungry processes, turned off unwanted Windows services and taken steps to reduce the impact of many other programs on your PC's performance. That's great, but to get the most from your PC you'll still need to follow two simple rules while you're working.

If you have a bulky application open but you won't be using it for a while, don't leave the window open on your desktop — minimise it. Windows will often free up some of the RAM it's using immediately.

If you're walking away from your PC and leaving an app running some lengthy task — rendering video, say — then make sure that the program is running in the foreground (just click its title bar). Windows gives more CPU time to the foreground app and you should find it completes more quickly. **CTC**

Tweaking just two configuration settings almost tripled our Crysis frame rate.



Keep your video drivers up to date to ensure the best possible performance.

# Make games faster

Improve frame rates by 20 to 400 per cent with the minimum of hassle.

Nothing is quite as demanding on your system as a cutting-edge game. To get playable frame rates you'll generally need lots of fast RAM, a powerful graphics card, a decent CPU and a speedy hard drive. But if your PC isn't quite up to scratch, don't give up immediately — there are a few tweaks you can apply that may improve things.

As we've already mentioned, detecting and removing resource-hungry processes, freeing up RAM and keeping your hard drive defragmented and optimised will make a real difference. Updating your video drivers can deliver even more benefits. For example, NVIDIA claimed that its 195.62 release would increase performance by 10 to 20 per cent in many 3D games, as well as by 38 per cent in Far Cry 2, and by up to 80 per cent in Lost Planet: Colonies. Impressive? Yes, but unfortunately the driver was soon withdrawn because users were reporting that their cards were overheating, so updating on the day of release probably isn't the best idea. Stay aware of what's going on, but let others try out new drivers for a couple of weeks before you jump in. In the meantime, you can always get an immediate speed boost by overclocking your video card. It's surprisingly easy.

## OVERCLOCK YOUR CARD

Launch the Display Settings applet, click 'Advanced Settings', choose your display adaptor's tab and fire up its control panel. If this is an ATI card then you should see an Overdrive section with sliders for GPU core and memory clockspeeds; NVIDIA cards have the same, and add a Shader Clock slider for good measure. [Don't see that? Make sure you're using the NVIDIA drivers, not those provided with Windows, and install the NVIDIA System Tools from [www.bit.ly/nvsygo](http://www.bit.ly/nvsygo).]

Tempting though it might be, don't

immediately push all these sliders to the maximum just to see what happens. Your PC will almost certainly crash, unless your video card overheats and dies before that happens.

It's much better to take a gradual approach, one slider at a time. Push up the Memory Core clock by maybe 10MHz, save the changes and then run something like the Crysis benchmark [demo at [www.crysisdemo.com](http://www.crysisdemo.com), benchmarking tool at [www.bit.ly/cryben](http://www.bit.ly/cryben)]. If the demo looks fine then repeat the process, perhaps reducing the increment to 5MHz after a couple of overlocks. If you've pushed the card too far then artefacts will begin to appear: strange lines, noise and general video oddities. In this case you should make a note of your last successful clockspeed, return to the default settings and move on to the next slider.

When finished, you'll have the highest successful value for each clock, so try setting all the clocks at the appropriate value. This probably won't be stable, so wind back the clocks you pushed furthest and try again until you're artefact-free. We tried this on a test PC and managed to increase our GeForce 8800 GTS performance by 14 per cent — nothing spectacular, but not bad for a couple of hours' work. Be sure to monitor your GPU temperature and increase fan speeds if necessary. RivaTuner ([www.guru3d.com/category/rivatuner](http://www.guru3d.com/category/rivatuner)) has everything you need to safely tweak both ATI and NVIDIA video cards.

## FIND THE BOTTLENECK

If everything we've discussed so far still doesn't get you close to the frame rates you need, your system may have a bottleneck that's holding everything else up.

Is your system RAM up to the task, for instance? When equipped with only 2GB of generic DDR2 OIMMs, our test PC barely reached 20fps on the Crysis demo (1,600 x

1,200, high quality). We replaced these with 4GB of Crucial's finest Ballistix offerings and frame rates went up by almost 25 per cent — not bad for an \$200 outlay. And that's just the start — faster and more reliable RAM means you'll probably be able to overclock your CPU further, too.

A RAM upgrade didn't offer the same benefits if we tried to run Crysis at the very highest-quality levels, though: the 2GB test returned 11.75fps, the 4GB a near-identical 11.915fps. That's because the graphics card is now the bottleneck. It simply couldn't deliver acceptable performance at the settings we'd chosen. As a last resort, then, you can always change your game settings. There's usually an intimidating list of quality-related options, but tweaking just one or two of these will often be enough. In Crysis, for instance, just changing the Shading Quality setting from 'Very High' to 'Medium' was enough to see our test PC's 1,600 x 1,200 frame rate leap from 11.915fps to 23.61fps.

Although Crysis will by default use DirectX 10 when installed on Windows Vista and 7, switching to DirectX 9 gave us a further big performance jump to a new frame rate of 35.49fps. There's no guarantee that other games with a similar option will see such a huge improvement, but it's worth a try.

We finished by applying some of the techniques we mentioned earlier. Disabling PC resource hogs increased the frame rate by four per cent; turning off pointless services gave us a three per cent increase; using Process Lasso added more than five per cent; and overclocking returned an extra 14 per cent. They're small gains, but every little bit helps, and the incremental effort meant that a previously unplayable game was now purring along at more than 45fps. That's close to a 400 per cent improvement — a real result. **BTIC**



## HOW TO TETHER LINUX WITH YOUR IPHONE

Using Linux shouldn't mean that tethering's not an option. **Ashton Mills** explains how you can do it in a few easy steps.

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End-of-year tech deductions **98**



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Have you solved a tech problem or found a better way of doing things with your computer? Share your information with other APC readers by sending it in as a tip to [quicktips@acpmagazines.com.au](mailto:quicktips@acpmagazines.com.au), together with your name, contact number and 20-word bio. Alternatively, if you have a technical question, post it online on our forums at [apcmag.com/forums](http://apcmag.com/forums) and other readers may be able to solve it.

# Experts solve your computing problems

APC, its readers and our partner publications can be one giant helpdesk. If you have a technical problem, chances are one of us can solve it.

## WINDOWS

### WINDOWS CHANGING FILE TYPE ICONS

**Q** I'm a fan of customising the look of my desktop and have always changed the default icons used by Windows to represent different types of file. Having worked my way through Windows 95, 98, XP and Vista, I've now reached Windows 7. In previous versions of Windows it was very easy to change file type icons, but this option seems to be well hidden in Windows 7. I'm keen to get this done to make it easier to distinguish between different types of video and image without having to resort to displaying file extensions. Can you point me in the right direction?

**Michael Watts**

**A** Changing icons in Windows 7 is a more involved process than it was in previous version of Windows, and it requires you to edit the Registry. While this isn't particularly difficult, if you intend to change icons for a large number of file types, it's going to be time-consuming. FileTypesMan is a free tool that you can download from [www.bit.ly/154MMN](http://www.bit.ly/154MMN). You can use it to change icons and other file type properties. Launch the program and either scroll through the list of file extensions or use the search facility to home in

on what you're looking for a little faster. Right-click the file type you're interested in and click 'Edit Selected File Type' [or just press [F2]]. Click the '...' button to the right of the Default icon label and then use the 'Change icon' dialog to browse through the contents of '.exe', '.dll' and '.ico' to find a suitable icon. You can repeat this process for as many other file icons as you want to change.

## WINDOWS

### CUSTOMISING EXPLORER LINKS

**Q** I have Windows 7 installed on my PC and like the way Explorer works, particularly the use of libraries to organise files and folders. The Navigation pane includes a Favorites section, which features links to key locations such as the desktop and the Downloads folder. However, these links are of limited use to me and I was hoping you could suggest a better use for the Favorites folder.

**Samuel Harris**

**A** Out of the box, the Explorer Favorites folder is, as you've found, a little restrictive. However, it can be customised. Any links you never use can be removed by simply right-clicking the folder in question and selecting the 'Remove' option. Folders you access frequently can be added to

the list by first navigating to the folder and then right-clicking the Favorites folder and selecting the 'Add current location to Favorites' option. You can also drag and drop folders onto Favorites to create new links.

Other useful options open up if you make use of Search Connectors. These are available for a number of different web sites, including Yahoo! and Bing. They're provided in OSDX format and mean that web sites can be searched from within Explorer. Perform a web search for search connectors and you'll find many available for download. You can also make your own to do things like perform a Bing search of any web site.

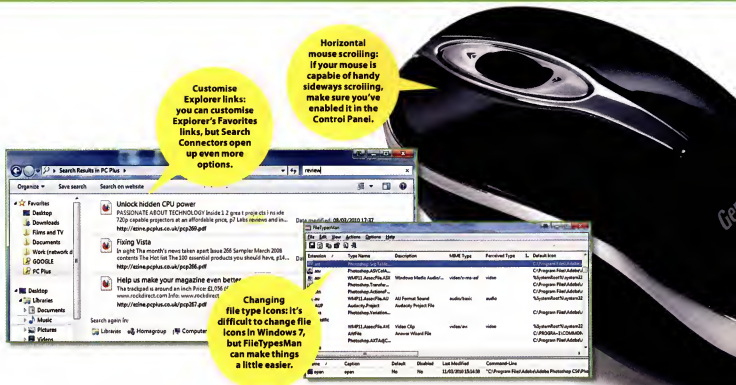
To do this, create a new Notepad file containing the following code:

```
<?xml version="1.0" encoding="UTF-8"?>
<OpenSearchDescription xmlns="http://a9.com/-/spec/opensearch/1.1/"
xmlns:msose="http://schemas.microsoft.com/opensearchext/2009/">
<ShortName>Sevenforums</ShortName>
<Description>NAME OF SEARCH CONNECTOR</Description>

<Url type="application/rss+xml"
template="http://api.bing.com/rss.aspx?source=web&query={searchTerms}"
site:URL OF WEB SITE &amp;web.count=50"/>

<Url type="text/html" template="http://www.bing.com/search?q={searchTerms}&site:URL OF WEB SITE"/> </OpenSearchDescription>
```





Replace the uppercase text to suit your needs and save the document as an OSOX file [select the 'All Files' option from the Save As Type menu and then enter the filename and extension manually]. Double-click the newly created file and click 'Add' in the dialog that appears. You can now access your site search option from any Explorer window.

## HARDWARE HORIZONTAL MOUSE SCROLLING

**Q** I have a Microsoft Wireless Entertainment 8000 keyboard and mouse running under Windows 7. Both are working reasonably well under the operating system apart from a few niggling issues. The mouse has a scrollwheel that can be rocked from side to side for sideways scrolling, but this doesn't seem to be working. I don't understand what the issue is, because everything was working fine under Windows XP and all of the function keys are still working correctly on the

keyboard. What could be causing this problem?

**Jonathan Bradley**

**A** There's no reason for the keyboard and mouse not to work properly under Windows 7, so it could just be that you haven't installed the software to activate the extra functions of the mouse. You'll need to install the IntelliPoint software, which is available to download from [www.microsoft.com/hardware](http://www.microsoft.com/hardware). It may be the case that you already have this installed but haven't activated the mouse's horizontal scrolling. Open the Mouse Control Panel and then move to the Scrolling tab before ticking the box labelled 'Enable horizontal scrolling with tilt wheel'.

## NETWORKING WAKE ON LAN

**Q** I'm trying to switch on one of my PCs using Wake On LAN, but I'm having trouble getting it to respond. My integrated network adaptor seems to support

WOL, but the connection lights around the network port go out when the computer is shut down or hibernated. I've installed the latest drivers, but to no avail. What should I do? I'm using Windows 7 Ultimate.

**Andrew Bowen**

**A** Click Start, right-click the 'Computer' link and select 'Manage' before moving to the Device Manager section of the Computer Management Console. Expand the Network Adapters section and double-click the entry for your network adaptor to bring up the Properties screen. Move to the Power Management tab, ensure that 'Allow this device to wake up the computer' and 'Only allow a magic packet to wake the computer' are ticked and then head to the Advanced tab. In the left-hand side of the dialog you should see an entry labelled 'Wake on Magic Packet' — highlight this, select 'Enabled' from the drop-down menu and click 'OK'. You may be prompted to restart Windows, but once this is done you should find that the Wake On LAN facility works.

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Plug your flash drive into a host PC and navigate using its Portable Apps Start menu.

When installing, you need to specify the drive letter of the USB flash drive on the current PC.



# Computing on a keyring

Now there's no need to carry a notebook around.

**Q** I can't always carry my notebook with me but sometimes I find I need to do some work that my smartphone can't handle. I've tried using library computers and those on my work network but these don't have access to the files and settings I need. How can I make my computing ultra-portable?

*Clive Laurie*

**A** Netbooks and smartphones are certainly a convenient way to carry the internet around with you, but sometimes you need more than these devices can offer. USB flash drives are an obvious solution, but you can't always get access to the software you need to edit your files. This is where Portable Apps can help you out. It's a suite of programs that sits on a flash drive. You can plug it into any Windows PC and get your own Start menu, including your own choice of applications and your personalised settings. You do need to get access to another PC to use it, but you get portable computing for the cost of a flash drive, and it's small enough to fit on a key ring.

Portable Apps provides a simple

environment, including its own Start menu. The platform on its own takes up a mere 2MB, which leaves plenty of room on any flash device for applications and some of your most useful files. There are two ready-installed suites that you can choose from. Suite Light is a 47MB download that takes up 100MB and includes Firefox, Thunderbird, Pidgin (an MSN/Yahoo! messenger equivalent), Abiword and Thunderbird Calendar, along with antivirus and media-playing software. If you need a full office suite, get Suite Standard. It's a bigger download but includes a full version of OpenOffice.org. The Portable Apps menu includes links to folders for Documents, Music, Pictures and Videos, each of which is stored on the flash drive.

To install a suite, point your browser at [www.portableapps.com/download](http://www.portableapps.com/download) and download one. For general use the Suite Light is probably sufficient, but if you have more space and bandwidth we'd recommend opting for Suite Standard. Start by launching the installer and then click 'Next'. Ensure that your flash drive is plugged in and recognised by Windows. Select the drive letter of your

flash drive and click 'Install'. Wait as the suite is written to the drive. Finally, complete the wizard. When you connect a drive, including Portable Apps, one of the autorun options will be 'Start PortableApps.com'. Select this or browse to the drive and launch 'StartPortableApps.exe'. Then click the icon in the system tray to open the Portable Apps Start menu.

If you'd rather create your own custom set of programs, select 'Options > Install a New App' and browse to the application installer. You can only install applications that have been ported to Portable Apps, but there are plenty available for download from [www.portableapps.com/apps](http://www.portableapps.com/apps). Take a look at the opposite page for our top picks and for help with choosing which applications to include.

When you've selected the software that you want, download the '.paf.exe' file using the link provided. To install it in Portable Apps, open your Portable Apps Start menu and choose 'Options > Install a New App'. Browse to the file you downloaded and open it. Follow the installation to add it to your flash drive. You'll now be able to launch it from your Portable Apps Start menu.

# 10 indispensable portable programs

Apps on the go? Here's what you need to know.

Notebooks are great for taking your files and programs on the move, but humping your machine around isn't always feasible. Smartphones are excellent for quick Google searches in the field, but you can't work on them like you would a PC. So what's the solution? Make a portable version of your setup then add portable apps. Here are our top 10 suggestions.

## 1 CHROME PORTABLE

If you like the simple interface of Google's browser then you'll probably want to take its portable version with you on your flash drive. It supports all the major features of the desktop version, including extensions — and you always have your bookmarks with you at all times. As with all applications on flash media, it may take longer to initially load than its desktop counterpart, but once in memory, it should be every bit as fast.

[www.bit.ly/ChromeP](http://www.bit.ly/ChromeP)

## 2 SKYPE PORTABLE

Need to make a phone call or instant message a contact? Skype Portable enables you to do this from any internet-connected PC. To make use of its audio and video capabilities, the PC needs a microphone and webcam. Invaluable when travelling.

[www.bit.ly/bCV6Cj](http://www.bit.ly/bCV6Cj)

## 3 VLC MEDIA PLAYER PORTABLE

VLC is one of the most flexible and useful media players around. It plays pretty much any format you care to throw at it and the program supports playlist files including those in M3U format. You can use its playlist manager to open, edit and save new playlists.

[www.bit.ly/9zFht3](http://www.bit.ly/9zFht3)

## 4 NOTEPAD++ PORTABLE

Text files are widely used in programming, web site mark up and

configuration files. Notepad only provides basic text editing. If you use text files a lot, Notepad ++ Portable is a must. It provides a wider range of features, such as the ability to record macros and thus automate tasks that you perform regularly. It has a much more sophisticated search tool than Notepad, plus you can set bookmarks in text files.

[www.bit.ly/aS6yEE](http://www.bit.ly/aS6yEE)

## 5 GIMP PORTABLE

GIMP supports multiple layers and is capable of completing fairly complex graphics tasks. Anything that you can do in Photoshop, you can do in GIMP. If you need to do any graphics work, this portable version is a worthwhile addition to your flash drive.

[www.bit.ly/Gimpport](http://www.bit.ly/Gimpport)

## 6 INKSCAPE PORTABLE

Graphics programs fall into two categories: raster and vector. Raster graphics are composed of a pattern of pixels, while vector graphics are concerned with shape. Draw a triangle in a raster graphics program and when you zoom into it, you'll see that the sloping sides are stepped. A vector program would preserve the triangle shape no matter how big you made it. Inkscape Portable is a vector program, and a very good one at that.

[www.bit.ly/dCRFgo](http://www.bit.ly/dCRFgo)

## 7 KOMPOZER PORTABLE

If you need to generate HTML web pages or simply make edits to existing ones, Kompozer will do the job admirably. It isn't quite as fully featured as FrontPage or Dreamweaver, but it's adequate for most uses. You can switch between a full preview of the HTML code for precision editing or paste in code snippets in normal view.

[www.bit.ly/b4NP2b](http://www.bit.ly/b4NP2b)

## 8 FILEZILLA PORTABLE

Filezilla Portable is an FTP program that makes transferring files to and from remote computers straightforward. Launch the program, enter the address of the FTP server you want to contact (providing your username and password) and click 'Quick Connect'. You can now drag files to and from the remote computer. Filezilla Portable saves your list of servers and settings, which makes it very handy to carry around with you.

[www.bit.ly/Filezilla](http://www.bit.ly/Filezilla)

## 9 PUTTY

Putty is a popular telnet and SSH client used for running remote sessions on other computers across a network or the internet. Once set up it gives you a local command-line console for a remote machine. This portable version is handy as it enables you to run remote sessions without leaving any data behind.

[www.bit.ly/Puttyup](http://www.bit.ly/Puttyup)

## 10 CELESTIA PORTABLE

Celestia is Google Earth for the skies, giving you access to the known parts of the galaxy within a computer-generated environment. When you start the program you'll see Earth in its current orientation. Want to see it spin on its axis? Choose 'Time > 10x Faster'. Repeat this twice so that it's running at 1,000x normal speed — you'll see the planet majestically turning.

[www.bit.ly/bqoAna](http://www.bit.ly/bqoAna)

The full list of stable apps compatible with Portable Apps can be found at [www.portableapps.com/apps](http://www.portableapps.com/apps). To find out more about developing your own apps, check [www.portableapps.com/development](http://www.portableapps.com/development). There's an elderly (but still useful) list of self-contained programs at [www.tinyapps.org](http://www.tinyapps.org). To find discussions about portable computing, visit [www.portableapps.com/forums](http://www.portableapps.com/forums). **more**



# insider tips

HOW THE PROFESSIONALS DO IT

WINDOWS VIEW

## Office 2010 on sale

Microsoft's next-gen Office suite, Office 2010, will introduce online Web Apps in an effort to catch up to Google and co.

APC  
EXPERT



DAVID  
FLYNN

Former APC editor and author of four best-selling books on Windows, David has been covering Microsoft's OS since the days of Windows 2.0.

The latest version of Office is here — in a myriad of formats.

Office 2010 finally made its debut this month on May 12, when it was officially launched and made available to Microsoft's business partners as well as members of its subscription-based MSDN developer community.

Boxed product intended for consumers won't reach the shelves until some time in June. Three editions of Office 2010 will be offered to mainstream customers: Home and Student 2010 (Word, Excel, PowerPoint and OneNote), Home and Business 2010 (which gains Outlook) and Professional 2010 (which ups the ante with Publisher and Access).

The entry-level Office Home and Student 2010 containing Word, Excel, PowerPoint and OneNote will sell for \$209 as a boxed product. If you buy a new PC with Office 2010 preloaded as a trial edition, or download the trial version from the internet yourself, you can shave \$40 off the sticker by purchasing one of Microsoft's new Product Key Cards for \$169. This contains a single-install product key for Office 2010.

Home and Business 2010, which adds Outlook to the Home and Student mix, will sell for \$379, with the relevant Product Key Card at \$269.

The top-shelf Office Professional 2010 — containing Word, Excel, PowerPoint, OneNote, Outlook, Publisher and Access — comes in at \$849, although opting for the

\$499 disc-free Product Key Card lands you a whopping \$350 discount.

Students and teachers will have access to Office Professional Academic 2010, which contains the same applications as Professional 2010 but will apparently carry a smaller price tag.

Corporate customers will be able to choose from Office Standard 2010 (Word, Excel, Outlook, PowerPoint, OneNote and Publisher) and Professional Plus 2010 (which also gets you Access, InfoPath, SharePoint Workspace and Microsoft Communicator instant messaging).

Business customers will be able to load up Microsoft's Office Web Apps right away on their own SharePoint Server (or a hosted SharePoint service). However, Microsoft has indicated that consumer access to Web Apps may not be ready until later in the year.

"[Office Web Apps] will be available when Windows Live ships their next version, Wave 4, but we don't know when that will be," Office 2010 senior product manager Reed Shaffner told APC during a briefing last month.

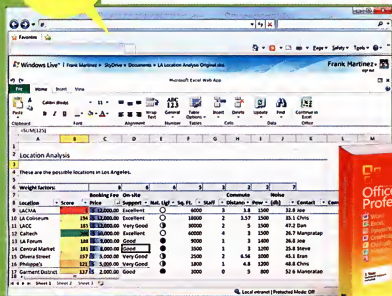
And while this will be the first edition of Office to ship in 64-bit as well as 32-bit editions, Microsoft admits that most users will have little reason to install the suite in 64-bit mode, says Microsoft.

According to Shaffner, "The big benefits around 64-bit are going to come in Excel with very large spreadsheets and massive calculations. We're talking sheets that have hundreds of millions of rows and utilizing things like Power Pivot" (Microsoft's high-end data analysis tool).

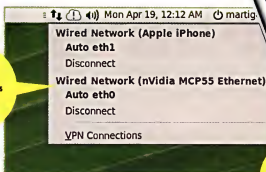
Microsoft is also looking for new ways to get Office 2010 into the hands of Windows users and pry open their wallet at the same time.

The company has ditched its Microsoft Works package for a free OEM-only bundle called Office Starter 2010. This will come preloaded onto new PCs and give users cut-down 'starter' versions of Word and Excel with limited features, and of course the ability to upgrade to any full-blown Office 2010 editions.

PCs that come with a trial version of the full Office 2010 suite — which we're told can be installed side by side with Office Starter — will be able to purchase a point-of-sale 'product key card' at stores, which will contain a licence key to turn the trial version into a fully working version. [bit.ly/108](http://bit.ly/108)



Ubuntu 9.10 finding the iPhone as an ethernet device.



Internet tethering active on the iPhone.



APC  
EXPERT



ASHTON  
MILLS

Editor of the Linux Pocketbooks series, and now with CHOICE magazine, Ashton has been a tech journal for over 13 years, including five years with APC.

# Tethering with iPhone

Using Linux shouldn't mean that tethering's not an option.

It's always handy having a phone that can be set up as a modem to the internet, especially if you're travelling with a notebook or netbook and don't always have proximity to an accessible wireless network. And, for iPhone users, while setting up tethering in Windows is quite straightforward, it hasn't always been easy under Linux.

Once upon a time setting up Linux to use the tethering feature required substantial legwork, including compiling libraries, kernel modules and invoking mysterious rites to the gods of geekdom.

But then comes progress. Now, you can set up your Ubuntu to access the internet via an iPhone with a minimum of fuss, and you have the choice of USB or Bluetooth connectivity. Both methods require different packages but involve little more than adding some specialist repositories and installing the required software.

First, of course, make sure tethering is turned on in your iPhone under Settings > General > Network > Tethering.

To set up tethering via USB open up a terminal (Applications > Accessories > Terminal) and run:

```
sudo -s
add-apt-repository ppa:pmcenerney/ppa
apt-get update
apt-get install gvfs-ipheth-utils
```

The magic package here, of course, is 'ipheth-utils' which pulls in required packages like libmobiledevice and the iPhone ethernet driver. These used to be the packages you had to compile manually, but the above PPA (Personal Package Archive) from Paul McEnerney provides pre-compiled packages for you.

From here activating tethering is as simple as plugging your iPhone in — you will see network manager report a new connection has been made, but you can also verify this from

the terminal: you should see 'ipheth' loaded if you run 'lsmod' and the system message log (run 'dmesg') will tell you that the 'Apple iPhone USB Ethernet device' is attached. Your iPhone will also display a blue bar and indicate tethering is now in use.

If you're already connected via wired or wireless and want to use the tethered link, right-click on the network icon in the taskbar. You should see 'Apple iPhone' now available as a new network. First disconnect from your current network and then re-enable the iPhone ethernet device.

For Bluetooth connections you need to use the latest version of the Bluetooth manager. This can be grabbed from the bluemanager repository like so:

```
sudo -s
add-apt-repository ppa:bluemanager/ppa
apt-get update
apt-get install bluemanager
```

You can find the Bluetooth manager under System > Preferences, where you can search for the iPhone as a Bluetooth device (ensuring first Bluetooth is enabled on the iPhone). Once paired, you can click on the iPhone within the manager and connect to it as a network access point.

Note that Ubuntu 10.04, Lucid Lynx, comes with much improved Bluetooth support and the above steps may no longer be necessary — you should be able to setup internet tethering with the iPhone by simply pairing the phone and your PC, and then telling Ubuntu to use your phone as a device for the internet, without the need to install any packages. The instructions for USB connectivity will still apply however, though with packages specific to Lucid Lynx — once Lucid is released and you've installed it, the above instructions will automatically pull in the correct packages for from the PPA. [\[1\]](#)



**DISTORTION FIELD**

# Mac mini vs PS3

Apple's tiny Mac is becoming a popular media server and PVR. But how does it stack up against a console like a PS3?

You either love the Mac mini or you hate it. But in many Australian households, Apple's most diminutive Mac has carved out a small but growing niche as a media server-cum-PVR that offers far more capabilities

than Apple's hugely limited Apple TV. But how does the Mac mini stack up against the PlayStation 3, Sony's selling-like-hotcakes gaming and Blu-ray console? Read on to find out.

**APC  
EXPERT**



**DAVID  
BRAUE**

David Braue is APC's newest columnist, who will be focusing on the Apple universe. He likes Apple but got the gig because we think he can be objective.

**\$849**

Mac entry-level price



## NETWORK

Because it includes a full network stack, the Mac mini can access and publish network shares with impunity. Drag-and-drop files straight from your office computer onto your Mac mini, then fire up Front Row and watch them with your Apple Remote. Record TV shows on the Mac mini, and other systems can play them without copying them.

## BLU-RAY

Just as it has banned Adobe Flash from the iPhone and iPad because Flash makes the App Store redundant, Apple has retained a steadfast opposition to Blu-ray — no doubt because adding Blu-ray would eliminate the incentive for customers to buy overpriced movie rentals through the iTunes Store. If you want or need Blu-ray and don't want to buy a standalone player, go with the PS3.

## GAMES

Contrary to accepted wisdom, Mac minis can play games — many of them quite good ones. But don't think for a second they're going to out-compute the PS3, which features hyper-optimised everything and can render an entire city in glistening 3D before your Mac mini even registers your mouse click. Serious gamers probably have a PS3 (or Xbox) already. But if your requirements are more sedate, the Mac mini rates — and recent Mac ports like *Bioshock*, *Call of Duty 4: Modern Warfare*, and Valve's new Mac version of *Steam* all look great on a big TV.

## OUTPUT

Just as it doesn't support Blu-ray, the Mac mini isn't really targeted at the 1080p video market; Apple seems to have settled its products at 720p. That said, you can get a pristine signal from the Mac mini with a DVI-to-HDMI cable and even analogue VGA output is extremely watchable. Both units support digital sound — but for pure output quality, the PS3 still comes up trumps.

## CUSTOMISE

Both systems can get online, but the fact that the Mac mini is a complete computer means it can not only offer a choice of browsers but can also be heavily scripted and deliver services like Twitter, Facebook, YouTube, Skype and more straight to your TV. Since the Mac mini can run any Mac application, you can customise it in far more ways than the PS3 could ever dream about.

## PVR

Both devices are capable of acting like PVRs, letting you watch and record TV — but you'll have to pay extra in both cases. Sony's \$169.95 PlayTV adds dual HDTV tuners, while the Mac's de facto-standard Elgato eyeTV software and tuners — available as a \$179.95 USB dongle or \$399 home network-broadcasting netstream OTT device — handle the trick nicely on the Mac mini. Bonus: TV content recorded on the Mac mini can be moved to other systems, transposed into iPhone/iPod touch/iPad versions, or watched on other eyeTV-running computers.

**\$499**

PS3 entry-level price

## NETWORKED CONTENT

Sony recently launched PS3 video services like VidZone for music videos, but the Mac mini still wins the content game hands-down. Built-in access to the iTunes Store allows rental and purchase of a broad range of movies through your existing iTunes account [even US accounts if you're set up that way], and with the right codecs installed you can watch any video you find online or off. You don't even need to copy or transcode your video: use iTunes' Sharing feature to shuttle content from other computers. Bonus points: the Mac mini can rip your DVDs into watchable files and can act as your master iTunes library.

## INTERFACE

The PS3 was designed from the start with a ten-foot interface (TFI) for the lounge room. Front Row provides a TFI on the Mac mini, but you'll still have to deal with a mouse and keyboard every once in a while. Third-party media apps like Plex and Boxee access dozens of online services through nice TFIs, and adding Remote Buddy lets your Apple Remote control basically any application you're running. Bonus: the Mac mini can also be remotely controlled using your iPhone with Apple's Remote application — which controls iTunes on any computer — or using a simulated app launcher and touchpad via apps like Logitech's free Touch Mouse.

## MUSIC AND PHOTOS

Both the PS3 and Mac mini can rip music onto their hard drives or stream music from networked sources, but the Mac mini can access music in your iTunes library and shared photos from iPhoto. Since millions of people use iTunes and iPhoto, this remains a big advantage if you want to get your existing content on your TV (or play your music through your home theatre) without having to copy it.

## OS

If you're a tinkerer, or you want to run Windows on your TV, the Mac mini is a much better choice. It supports the latest versions of Parallels, VMWare Fusion and VirtualBox virtualisation software, allowing you to install Windows 7 — or any of dozens of other operating systems including Linux, FreeBSD, or what-have-you. The PS3 supported alternative OSs for some time through the Other OS feature, but Sony has discontinued official support.

OS X

# Genius features in iTunes 9

iTunes can make playlists and mixes for you, as well as recommend music you might like.

APC  
EXPERT



JENNETH  
ORANTIA

An expert on all things mobile, Jenneth Orantia has been writing reviews and tutorials on smartphones for the last seven years. Her current phone of choice is the iPhone 3GS, but she's also well-versed in Windows Mobile, Symbian, Palm and BlackBerry.

Genius is a catch-all phrase that refers to all of the features that work off an analysis of your iTunes content library and a comparison of it to other iTunes users. It's manifested in three ways: playlists, mixes and recommendations.

Since all of the information about your music library needs to be sent to Apple (anonymously) for Genius to work, it's not a feature that's turned on by default. To opt-in, first make sure that you've got the latest version of iTunes 9 by going to Help > Check for Updates. Then, click on Genius in the panel on the left-hand side and click 'Turn on Genius'.

From there, iTunes will analyse your content library, send all of that information to Apple and formulate your Genius results. Once it's complete, you'll see a new entry under Genius in the left-hand panel for Genius Mixes. These are automatically created for you by iTunes and are essentially collections of songs Genius thinks sound good together. iTunes can make up to 12 Genius Mixes, although it's dependent on the types of music you have in your iTunes library — on our machine, the excess of Bob Marley tracks prompted Genius to create a single Reggae Mix.

Genius Playlists take this idea further by letting you specify a particular song for iTunes to work its magic on. iTunes will then create a playlist of songs in your music library that go well with the song that you have selected. Of course, it's no substitute for hand-picking the songs yourself — it is just a piece of software, after all — but for a machine-generated list, the results aren't half bad. Basing the Genius Playlist on the Police's 'Every Little Thing She Does is Magic' created a playlist including the songs 'Brown

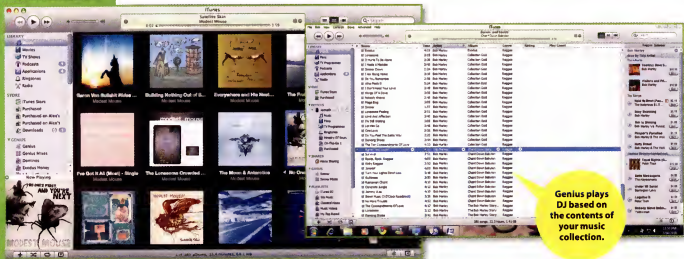
Eyed Girl' by Van Morrison, 'Peace Train' by Cat Stevens and 'Top of the world' by the Carpenters. Of course, it also included 'Step by Step' by New Kids on the Block, so your mileage may vary — the bigger your music collection is, the better the results will be, as iTunes will have a bigger pool of music to select from.

If you're not impressed with the results, clicking Refresh in the top right corner will create a new playlist of songs. Once you're happy with the selection, click the 'Save Playlist' button to save it under your Playlists. By default, Genius Playlists are limited to 25 songs, but you can increase this to 50, 75 or 100 songs by selecting the option under 'Limit to'.

While Genius Playlists and Mixes are designed to help you get the most out of your existing music library, Genius Recommendations are designed to help you expand your library based on content you currently own.

Recommendations take the form of a sidebar on the right-hand side of iTunes that recommends music, movies and TV shows that you might like based on the item you've selected. The Genius Sidebar isn't displayed by default — to show it, click View > Show Genius Sidebar.

Recommendations for music consist of albums and songs by the same artist, as well as albums and songs by other artists that are similar to your selection — a great way to discover new music that you may not have heard before. Each recommended item has a Buy button for quickly purchasing it through iTunes, and singles have a play button next to them so you can hear a 30-second snippet.



Genius plays DJ based on the contents of your music collection.

# Get fit with iPhone

Jenneth Orantia uses her iPhone as a personal trainer.

Jack of all trades, master of none? Not in the iPhone's case. Apple's pocket powerhouse is remarkably adept at most things it does, particularly phone functions, web browsing, multimedia, navigation and gaming.

A less obvious — but no less effective — application is as a personal fitness companion. Whether you're starting a new fitness regime or simply want to start watching your weight, the iPhone has all the apps you need — supported by hardware features, where applicable — to make it as painless as possible.

Those wanting to track running and walking activities will get great results by investing in the Nike+ iPod system. This consists of Nike+ branded running shoes and a special sensor that fits into the shoe and wirelessly transmits data to an app on your iPhone. The data sent consists of the usual information such as pace, distance, and calories burned, but since it uses an accelerometer in the shoe, it's a lot more accurate than a standard pedometer.

The other great thing about the Nike+ iPod system is that it comes with free entry to the excellent online community at Nike+ Running, where you can visualise all of your runs, set goals, start custom training programs and participate in challenges against friends and other members of the community. Syncing your iPhone to iTunes will automatically send your workout data to the Nike+ Running web site.

I used the word 'invest' a couple of paragraphs ago as it's not a cheap system to get into. Between the requisite running Nike+ shoes and the wireless sensor, you're looking at spending at least \$128 (a hundred dollars for the shoes and \$28 for the sensor). If that's a little too rich for your blood, you can actually get more features at a fraction of the cost (\$12.99) with the sophisticated Runkeeper Pro app.

As well as recording pace, calories, and distance for each workout, Runkeeper Pro

uses the iPhone's GPS to track elevation and the path that you travelled on, which you can view on a map on your iPhone or through your personal dashboard on [runkeeper.com](http://runkeeper.com). You can also set a target pace before you start running and get audio cues through your headphones if you fall behind.

If weight training is more your cup of tea, the iFitness app is the next best thing to having a personal trainer — and a lot cheaper besides, at \$2.49. iFitness offers a database of over 300 exercises, including visual diagrams, text instructions, and videos for each so you can quickly master unfamiliar exercises and ensure that you're completing each one properly. Exercises are sorted by body region, and there are 14 pre-loaded routines that target different fitness goals like weight loss and strength building. Alternatively, you can create your own custom workouts, and log all of your workouts so you've got a history of your training.

There's no shortage of calorie counting apps available on iTunes — the only problem is that they're all US-centric and hence refer to American brands and fast food restaurants. Tap&Track is one of the better apps available — the food database is still biased towards US food, but unlike most of the other apps it supports the metric system for your weight and measurement and makes it simple to add custom foods that aren't in the database. It's also got one of the nicer user interfaces, with an at-a-glance visual indicator of how many calories you have remaining for the day (which is calculated according to your weight loss goals) and a full-screen graph that displays your weight loss (or gain) over a period of time. For checking the nutritional information for Australian foods, I found the database at Calorie King ([www.calorieking.com.au/foods/](http://www.calorieking.com.au/foods/)) to be invaluable. [View](#)

Lots of different get-fit-regimes await you in the App Store.



# How to surf privately (& watch O/S TV)

Proxies, VPNs and assorted anonymiser services promise to keep your surfing identity secret when watching restricted TV.

APC  
EXPERT



ANTONIO MORRIS

Antonio is a geek whose primary aim in life is to migrate all of his computer and web usage to his BlackBerry (since the company pays for it!). He's one of several BlackBerry users who will write about their crackberry addiction.

With credit card and identity fraud on the increase, we all want to surf the net securely and privately, but if you google "private surfing" you'll find a nightmarish list of services promising to keep your identity and web surfing secret. It's hard to know where to start. While the services come in under various names, they basically fall into two categories. Some "anonymiser" services provide a mixture of both.

## PROXY SERVICES

The simplest way to make your surfing anonymous is to use a proxy service, in which you connect to the net via a computer (proxy) set up by a third party. Any site that tries to capture your IP information or location finds the proxy's details. To connect via proxy you download a browser plug-in or set up a direct connection to the proxy via Windows networking. There are free and paid services. If you choose free, be prepared to trawl through lists of free proxy servers to find ones that work. Good free proxy servers quickly get swamped so you need to be constantly on the lookout for new ones. While paid proxies have better uptime, proxy services in general aren't good for watching geographically restricted television, since they can rarely handle streaming videos. A big problem with proxy services is proving their legitimacy, since they are very easy to set up. Forums abound with stories of poor tech support and of paid proxy services taking people's money.

## VPN SERVICES

VPN services provide you with an encrypted "tunnel" into

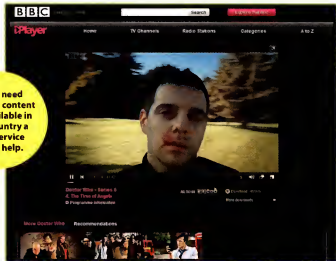
a VPN server that completely hides your identity and location. Unlike proxies, VPN servers can set aside a lot of bandwidth for you and will handle streaming video. If you select a VPN server in the country with the restricted web TV services you want (say, in the UK for the BBC's iPlayer or in the US for Hulu) the content provider has no way of knowing you are from abroad and the video will play as if you're local.

But search for VPN providers in Google and, like for proxies, you get an endless list of companies whose legitimacy is virtually impossible to check. However, amongst them are some well-known names that provide VPN services as part of a larger suite of networking and security services. These include names like Steganos and the one we eventually settled on, Comodo, a US security software vendor. We signed up to Comodo's TrustConnect service, which costs US\$6.99 a month for 100GB of data (or US\$49.99 a year). You download a small client, install it and it automatically connects you via VPN to a Comodo server. The critical part is that it also lets you choose from a list of geographically disparate VPN servers, so we changed the connection to a UK-based one. We went to the BBC's iPlayer and, pronto, the content streamed as if we were in the UK. We connected to a US-based VPN server, went to Hulu, and it worked too.

We must stress that we don't condone Australians accessing content that is restricted to them, but we are concerned that British or US visitors to Australia are unable to watch their favourite shows on the BBC's iPlayer or the US network's Hulu service.



If you need to watch content not available in this country a VPN service could help.





APC  
EXPERT



PETER  
DOCKRILL

Peter Dockrill is APC's DVD Editor. He also edits the Chip Chat column, in addition to writing occasional reviews and sub-editing the magazine. He formerly edited APC's Watchdog section, and he contributes as technology writer to *Money* magazine.

What price is peace of mind? Pretty priceless if you ask us!



## Back up your data

Use our cover disc software, Novosoft Handy Backup Lite, to back up and protect your data.

The old cliché used to be that, in the event of a calamity like a house fire, the one thing you'd try to grab before fleeing the blaze would be your photos. And the same still holds true today. The only difference is, these days, the majority of your photo collection [or at least the newer stuff] is likely to be digital. Now, the advantages of digital photos are numerous, but, unless you've got a backup of the ones stored on your hard drive, you'd probably be better off sticking with film. Why? Because of the very real threat of data loss (whether by mechanical means such as hard drive failure, or accidental deletion, viruses, theft, you name it...). Indeed, it seems like only yesterday — it was, in fact, last January — that I was writing in this very section

of the mag about the multitude of reasons why you ought to make sure you have a safe backup of all your personal data. But I'm here to make that point again — and, thanks to this month's cover DVD software, Novosoft Handy Backup Lite — it's not just empty advice. We've given you the practical tools — go ahead and load it up! After you've installed the software, you'll need to register it using the serial number provided on the disc. Then, just select File > New Task and the Wizard will walk you through configuring your backup (or sync). There's comprehensive help within the program if you need any assistance, but it's pretty easy stuff all told — and the peace of mind is priceless. [bits](#)

## Essential Berry shortcuts

Our BlackBerry expert **Antonio Morris** runs through his most essential shortcuts.



I was shocked the other day when I watched a BlackBerry user at a meeting hunting and pecking on the Bold 9700 keyboard and using the touch button to achieve even the most basic tasks, like opening the address book. I couldn't bear to watch, so during a break in the conference I took him aside and told him he just wasn't using his BlackBerry to its full advantage — by not using all the shortcuts available to him. I then emailed him a few tips, but then decided to get more scientific about it and asked BlackBerry's makers, RIM, if they had a complete insider's list of tips. They sent me a list from Adapt Training Solutions, a corporate training company. I have highlighted some of the most useful from the list for your benefit:

- To view the contact list, hold the Send key.
- To check your voice mail, hold 1.
- To move to the top of the Phone screen, press the Space key.
- To view the last phone number that you typed, press the Space key and the Enter key. Press the Send key to dial the number.
- To view sent messages, press the Alt key and 0.
- To view voice mail messages, press the Alt key and V.
- To view Short Message Service (SMS) text messages, press the Alt key and S.
- To view call logs, press the Alt key and P.
- To exit a screen or to move to a previous page in a browser, press the Escape key.
- To return to the Home screen, press the End key.
- To insert an at sign (@) or a period (.) in an email address field, press the Space key.

There are far far more, obviously. Go to [apcmag.com/blackberry](http://apcmag.com/blackberry) for an expanded list. [links](#)

OPEN SOURCE CHALLENGE

# Ubuntu 10.04

The latest Ubuntu release is here, and with it come some controversial changes. We look at what's new and improved.

APC  
EXPERT



ASHTON  
MILLS

Ashton has been using Linux since Slackware came on tupples, and before that he was one of the three people in the world who used OS/2 (and loved it). Always ready to make the most of his PCs, he is constantly playing with Linux distributions and compiling the latest kernel. This is his idea of fun, and why we get him to write for you.

Every release of Ubuntu builds on the previous version, and with Canonical's six-month release cycle the volume of change from version to version can sometimes be staggering. Ubuntu 10.04 represents some significant changes, not all of them good, but for the most part they combine to make Ubuntu an ever more polished distribution. Read on to find out more.

## WHAT'S NEW WITH LUCID LYNX

Ubuntu 10.04, aka Lucid Lynx, is an LTS (Long Term Support) release. This means it will be maintained for three years on the desktop, and five for server. LTS releases are made primarily for business, where a base platform and support can be guaranteed for some time to come.

In addition to being an LTS release, there are a number of important changes 10.04 brings with it. First and foremost is the branding — Ubuntu now sports a new logo which, admittedly, does give the distribution a more professional look. Paired with this, as with most releases, is a new default theme that for the first time moves away from the bright orange theme that Ubuntu has been renowned for to a dark chocolate brown, giving the distribution a more subtle but brooding look.

With this, however, comes one of the more controversial changes: the moving of the window buttons, and particularly the close button, to the top left. Not only does this break habit for all Ubuntu users to date, and confuse Windows users who may be making the transition, but it also makes it easier to accidentally hit the close button, an exercise in frustration. The reason for this change isn't clear, and the only response from Canonical is that it was down to the design team.

Clearly, however, the design team didn't consult actual users and, despite hundreds of posts on the Ubuntu forums during Alpha and Beta phases, this unfortunate design flaw has stuck to the final release.

Also controversial, not that you'd know it now, was that up to Ubuntu 10.04 Beta 2 the default search engine of Google was replaced by Yahoo!. Apparently a monetising exercise proved fruitful for Canonical and Yahoo! wpon the deal. When you consider the massive Ubuntu userbase, this is good business sense. Which is why, perhaps, beta testers later found in the Ubuntu 10.04 RC (Release Candidate), just prior to the full release, that the default search engine had switched back to Google. Did Google come to the party with a bigger offer? Who knows? The official line states the change of mind is more to not confuse users and stick with a familiar default they've been used to — something that didn't stop Canonical moving the window buttons around, however, confusing everyone who has used Ubuntu since its inception.

## SPEED AND FEATURES

One goal for this release was a sub-ten second boot time. Obviously this depends on the hardware, but in our testing a Lenovo SL500 notebook took 22 seconds, while an Intel dual-core desktop managed 16 seconds. Not bad, and faster than Karmic Koala before it. Windows 7 takes 24 seconds on the same system.

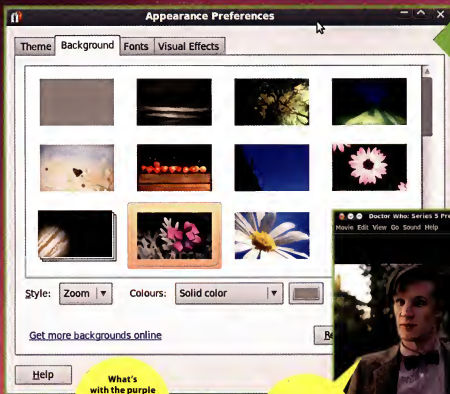
This is due in part to the 2.6.32 kernel, which brings with it 3D support for Radeon cards, better power-saving features for notebooks, and various performance improvements. Also new is Gnome 2.30, OpenOffice 3.2, Firefox 3.6.3 and Transmission 1.92. And, finally, the addition of the Nouveau open-source NVIDIA drivers, four years in the making and backported from the 2.6.33 kernel, providing native 2D accelerated support for NVIDIA cards out of the box. Even these important changes, however, are not as impacting as some of the new features.

Ubuntu One, the free cloud storage service offered to all Ubuntu users, has been paired with a new Ubuntu service — the Ubuntu Music Store. The music store can be accessed through Rhythmbox, and after downloading appropriate MP3 codecs for playback, you'll get an iTunes-esque shopfront where you can play, pay and download music to your PC. Then, of course, Ubuntu One can back up your purchased songs to the cloud — you'll have these (and any other files you store) anywhere you log in to your Ubuntu One account.

The Ubuntu Software Centre has had a small overhaul, with an improved look, better navigation and much improved feedback for installing applications. It's actually becoming a pleasure to use now, and the Featured Applications are quite useful.

The new  
Ubuntu One  
music store. Who  
would have  
thought?





What's with the purple background? It's the Ubuntu 10.04 default desktop. Pretty.

Watching YouTube through the Totem media player.

## BACKGROUNDS

Lucid Lynx comes with a new range of backgrounds, replacing those from Karmic Koala. However, if you were fond of the previous backgrounds — and some are certainly beautiful — you can add them to your collection like so:

```
sudo apt-get install ubuntu-wallpapers-extra
```

And then browse to:  
System > Appearance > Backgrounds.



The GIMP has been removed, apparently because it's too complex and powerful an image editing tool for desktop users [the irony, given this is desktop *Linux*] and now needs to be installed separately. Basic photo-related editing can still be performed by F-Spot. In its place is Pitivi, a quite-capable open source video-editing tool. Think Windows Movie Maker on steroids. Thanks to the new Gnome 2.30, Nautilus has had some loving attention too. Now, finally, you can get a split-pane view by pressing F3, making file management a heck of a lot easier.

Then there's support for the humble iPods: iPods and the iPhone. Both Ubuntu's device recognition and Bluetooth now provide better support, enabling music transfers for iPods in Rhythmbox and browsing of the iPhone's file structure, though in testing with an iPhone 3GS we weren't able to do so [perhaps it's coming in a post-release update]. However, on the Bluetooth side, while Ubuntu 9.10 didn't recognise the iPhone without fiddling with new packages, Ubuntu 10.04 recognised it out of the box no problem. Kudos there.

Of all the new additions, the most significant is a move to the social space. The user menu,

cutey called the 'MeMenu', now integrates instant messaging (iCO, MSN, Groupwise and more) through Empathy along with what Ubuntu is calling 'Broadcast messages', aka posts to Facebook, Twitter and more all integrated via Gwibber [think instant messaging for social networking]. This, along with Ubuntu One, can all be accessed from the MeMenu, and you can even post updates to social networking sites directly from it. This is the best social media desktop integration we've seen yet.

Finally, the good news is that with all of the above Ubuntu is still relatively lean, and initial memory usage of a fresh install pops up at around 330MB. Considering what it brings to the table, Ubuntu 10.04 is a marked improvement and you can't help but think where 11.04 is going to take us. And, small annoyances aside [see next], this is certainly the most beautiful and polished Ubuntu yet.

## SO, ABOUT THAT CLOSE BUTTON...

If you're in the majority of the population that finds the moved close button a pain in the Ubuntu, here's a few ways to fix it.

**Themes** — The new Ambiance (default) and Radiance themes are set up for it, while some of the others aren't. New Wave is actually one of the better themes and not only looks great but keeps its original placement of the window buttons. After selecting it in System > Appearance, take the extra step and click Customise. Then, under Icons, select 'Ubuntu-Mono-Dark'. This is the new icon theme Ambiance uses for dark themes and will better highlight your taskbar icons [volume control, clock, Wi-Fi etc].

**GConf** — Also known as the 'registry' for Gnome. You can keep your original Ambiance or Radiance themes and tell Gnome to put those buttons where they belong. Press Alt-F2 and fire up 'gconf-editor'. Scroll down to Apps > Metacity > General and change 'button layout' to 'minimize,maximize,close'. Note the preceding colon ':' is essential. You can also use 'menu:minimize,maximize,close' to display the standard window control options as well.

And that's our first look at Ubuntu 10.04, and the start of our tweaks and tips. Next issue we'll cover a range of excellent tweaks to set up Lucid Lynx for the power user. [tweaks](#)



# workshops

HANDS-ON WITH HARDWARE & SOFTWARE

## Control drivers

**Jon Thompson** shows you how to use DriverEasy to take the hassle out of keeping your device drivers up to date.

### WHAT YOU'LL NEED

#### DRIVEREASY

This free utility finds and upgrades out-of-date device drivers. You'll find it at [www.drivereasy.com](http://www.drivereasy.com).

DriverEasy is a free tool that makes it easy to update device drivers.

Even though it's more than three years since it launched, Windows Vista still has problems with drivers. Windows 7 has also had similar difficulties (though to a much lesser extent) as hardware manufacturers struggled to adapt.

Some people never seem to encounter device driver problems, while others have great difficulty finding the right ones. Recent versions of Windows have been picky about which drivers they install, and because of this, these tiny but essential pieces of code have entered the public consciousness in ways that have hit Microsoft hard.

New versions of Windows carry an increasing volume of generic device drivers. These support industry-standard features, but manufacturers still have to write their own code to add support for device-specific hardware functions. And that can be where problems creep in.

### DEVICE DRIVER BASICS

A device driver is a piece of software that sits between the operating system and the hardware. It enables the OS to access the device using standard system calls. Drivers provide a convenient way of interfacing a variety of devices, without the OS or applications bothering with the details of physically communicating with the hardware in question.

When you install a new device, you also install its driver. When the system boots up, it loads the installed device drivers into the kernel, thereby making the devices they support available for use. Device drivers are so important

that they're normally given away free. In fact, when you plug in a new device, Windows automatically pops up its New Device Wizard to guide you through the simple process of downloading the relevant driver.

Every peripheral uses device drivers because of the flexibility they provide. This even includes motherboard components such as temperature management hardware. After all, there's no telling which fans or liquid cooling system a user might install, but the operating system has to cope with those choices.

### DRIVERS IN WINDOWS

Microsoft Windows has to cope with a bewildering spectrum of peripherals because it relies completely on device drivers. It has its own flexible (and complex) specification for writing and integrating them with its kernel.

You can inspect and manage individual drivers in Windows if you know where to look. In all versions of Windows from XP onwards, click 'Start', right-click 'Computer' and select 'Manage' to make the Computer Management Console appear.

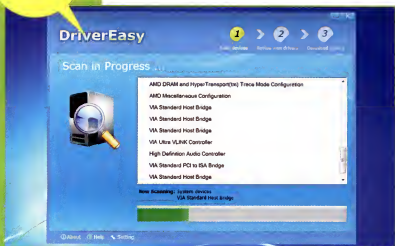
Double-click 'Device Manager' in the left-hand pane and a list of all the computer's peripherals will appear, sorted alphabetically into hardware areas. As you can see, pretty much everything is considered a peripheral device (even the CPU), and therefore has its own device driver.

Click on a group to open its contents, then click on a peripheral. A small window will appear. If the device is installed and the driver is running, a message appears in the status window saying: 'This device is working properly'.

Click the Driver tab to see details of the device driver and options to manage it. Here you can get details of the current driver version and update it by hand. If the current one causes your peripheral to act strangely or stop working, you can roll it back to a previous version.

Click 'Driver Details'. The information here is useful if you ever need to call a support line about a peripheral. Quote the details found in the resultant pop-up when asked for the details of the installed driver.

The 'Update Driver' button enables you to locate and install newer versions of the driver by hand. Click it and Windows will ask whether you'd like to search online for the latest version, or open a file you've downloaded. Searching automatically will contact what Microsoft describes as 'several locations' online to locate a more up-to-date version. If none exist, a message will appear telling you so. If there's a





## Scan for Updating Driver

DriverEasy's options enable you to update your device drivers securely from a network that's protected by a proxy server.



Once downloaded, the driver's package takes over to run the installation.



# Missed a tutorial?

Go to [apcmag.com](http://apcmag.com) or [www.mageahop.com.au](http://www.mageahop.com.au) for back issues of APC

more recent version of the driver available, the usual Windows installation wizard will guide you through the update process.

The 'Roll Back Driver' button will be active if the driver has ever been updated. It enables you to step back to a previous driver version in cases where a newer one starts causing problems with your system. Allied to this button is the 'Disable' button. Some device drivers must be kept running at all times (such as those for the keyboard and mouse), but others can be disabled and re-enabled to clear problems.

Finally, the 'Uninstall' button will completely remove the device driver from the system. This is the button to use if you ever sell a peripheral; Windows will no longer need its driver, and your PC might run a little smoother without the redundant code.

### DRIVER PROBLEMS

The hardware flexibility made possible by device drivers leads to a problem. Taking printers as an example, because each make and model has its own requirements (not just commands, but also signals and crucial timings), you have to install exactly the right driver if all the features are to work as they should.

The crux of the problem is that those drivers are not only hardware-specific, but also operating system-specific. When Microsoft

releases a major new Windows update, your printer's manufacturer needs to write a driver designed specifically for the new Windows version. Until this happens, your printer is basically scrap metal and plastic.

This is what happened during the early adopters' rush to install Windows Vista a couple of years ago. Reports quickly surfaced of even relatively new peripherals not working after upgrading from XP. A lack of drivers for Vista was to blame. Some pundits even suggested that hardware manufacturers would use this as an excuse to abandon support for perfectly serviceable devices and force customers to buy again.

In truth, writing a device driver is a very specialised job, requiring detailed, in-depth knowledge of the device to be driven and of the operating system on which the driver must run. Poorly written or badly debugged device drivers can bring operating systems crashing down.

Device drivers have to be made as bug-free as possible within time and budget constraints, so specialised programmers known as software engineers may be called in to undertake new drivers development and maintenance. They apply dedicated specification and coding disciplines to software design to produce code that can be proven to conform exactly to the original design specification.

However, it's said that all programs are exploitable and device drivers have certainly been undermined by hackers. Attacks can be mounted in order to gain access to the OS, or crash drivers that operate network cards (thereby denying service to users). This is the origin of the term 'denial of service attack': originally, a hand-crafted packet of data would be sent to a PC, which would lock it up completely until it was restarted.

Hacking has come a long way in the intervening 15 years, so it's important to keep your device drivers updated. With an ocean of hardware manufacturers, ranges and drivers, managing that task has traditionally been complex. However, there's a new breed of software that's dedicated to analysing and maintaining your operating system's driver structure in an efficient way.

### EASY UPDATES

One such program is DriverEasy, which you can download for free from [www.drivereasy.com](http://www.drivereasy.com). Run the downloaded executable and click 'Next' on the splash screen. Click 'Next' again to accept the default installation folder, and again to accept the default name for the Start menu folder. Accept the desktop icon (or untick the box if you don't want one) and press 'Next' again. Finally, press 'Install'. Leave the 'Launch

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## ABOUT THE OPEN SOURCE ALTERNATIVE

Increasingly, open source developers are choosing to write their own device drivers. This is an important aspect of making desktop Linux distributions as easy to use as possible. Interoperability with existing hardware is essential for increasing the number of people switching from Windows or creating dual-boot systems.

Writing device drivers requires detailed knowledge of not only the peripheral's hardware but also the host operating system and its kernel.

Device drivers have privileged access to the running operating system and its resources, and mistakes can lead to system crashes and data losses.

This means it's essential that hardware manufacturers supply as much detail as possible about their products for developers to use to create drivers. Where this information isn't forthcoming, some enterprising hackers have discovered that, by studying devices in operation,

they can infer what's going on in a process known as 'reverse engineering'.

Last year, Microsoft released 20,000 lines of source code to the open source community for Linux kernel development. But its actions may not be as altruistic as they first appear. In a statement issued in July 2009, Microsoft said that the device drivers are meant to "enhance the performance of the Linux operating system when virtualised on Windows Server 2008 Hyper-V."



DriverEasy's box ticked and click 'Finish' to run the product for the first time.

Click the green 'Scan Now' button and DriverEasy will scan the installed device drivers, checking their version numbers against its database. As it does so, it produces a list of those it considers out of date. When DriverEasy has completed its scan, it pauses to show the list of suspect drivers. Click the 'Get Drivers' button to continue.

The next screen presents a list of upgrades required for the identified device drivers. Each entry has three buttons. Initially, the 'Download' button is the only one active. Click one of these and DriverEasy will download the new driver. This can take a few minutes depending on the speed and workload of the remote server upon which the driver resides, and the speed of your broadband link.

Once downloaded, you can install the driver update by pressing the 'Install' button. In Windows Vista or 7, this will result in a User Account Control pop-up asking if you want to proceed. Click 'Yes' and continue.

The driver's own software now takes over. Follow its installation wizard's instructions to install the upgrade. If you decide not to update the driver, click 'Delete' and DriverEasy will remove the update from your system.

Work your way down the list of drivers to upgrade, downloading and installing packages as you go. You can only download one driver at a time, but for users who update their system regularly, the number of drivers to be upgraded on subsequent scans will be minimal.

### PROXY SETTINGS

DriverEasy may have problems contacting the internet on a network that has a proxy server. If this happens, help is at hand. A proxy server acts as a stepping-stone between a local network and the internet. It can speed up internet access by storing files that are accessed regularly and serving them itself. Some proxies filter objectionable content and spam — even whole web sites.

If you're updating your drivers at work or school, you'll probably have to go through the network's local proxy server. At the bottom of the DriverEasy interface you'll see a 'Settings' button. Click this to enter the details of the local proxy server. With 'Use a proxy server' selected, enter the server's IP address and port number (the default of 80 is usually fine). If you have to log into the proxy server, also enter your username and password. Press 'Test' to ensure everything is set up correctly. [Full instructions](#)

You can identify a device's make and model from its unique ID string.

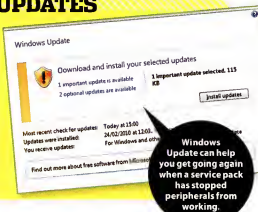
## PACE OF CHANGE

Demonstrating how quickly device driver development occurs, DriverEasy found a total of nine drivers that were already out of date just six months after the full official launch of Microsoft's current flagship operating system. These particular drivers are used by video and sound cards, as well as basic peripherals such as the mouse and keyboard.

## GET HARDWARE WORKING AFTER VISTA UPDATES

Some devices may stop working if you've installed a service pack in Vista. If this happens, click 'Start', type 'device manager' and press [Enter]. Navigate to the hardware in the Device Manager window. If it has a yellow exclamation mark, Windows can't find the driver. If there's no exclamation mark, it means the device driver is installed but not working properly. If Windows can't find the driver, click 'Start' and type 'windows update' in the Search box. Click 'Check for updates' to look online. If any updates are available, click on them to see their details. If one of the updates is a device driver, check its

associated tickbox and press 'OK'. On the main Windows Update window, you'll see a button marked 'Install Updates'. Click this to update. If the device driver is installed but keeps malfunctioning, you can reinstall it. In Device Manager, right-click the device and select 'Uninstall'. Click 'OK', then right-click the device again and select 'Scan for hardware changes'. You may receive a message to say that Windows has identified new hardware and asking if you want to install its driver. Click this pop-up box and select 'Locate and install driver software (recommended)' to reinstall the driver.



Windows Update can help you get going again when a service pack has stopped peripherals from working.

# Create automated interfaces

**Mike Williams** discovers how Autolt's varied interface options can add new power to your scripts.

## WHAT YOU'LL NEED

### AUTOIT

The Autolt development environment provides everything you need to create, edit and compile scripts ([www.bit.ly/b44Lj1](http://www.bit.ly/b44Lj1)). Grab a copy of the full Autolt Script Editor, too — it has some useful macro-recording features we'll need later.

The first two parts of this tutorial covered some simple yet effective applications for Autolt's scripting language. There's plenty of info we've yet to cover, though, such as how to run a script from a hotkey, alert users via a system tray icon or build a full GUI for your script. We also need to explain how scripts can be extended with user functions and macros. To finish, we'll show you just how few limitations Autolt has by pointing you to some of its best projects. They're no longer just scripts: they're fully fledged apps, as powerful as those produced by any other programming language.

The scripts we've created so far have been very procedural and batch file-like, where perhaps you'd leave a few on your desktop and double-click them when necessary. This works, but it's not exactly convenient, and Autolt offers some smarter alternatives. Consider this script, for example:

```
HotKeySet("^F9", 'IPAddress')
Func IPAddress()
Send(@IPAddress1)
EndFunc
While True
Wend
```

When you run this script, Autolt creates a hotkey corresponding to the keypress you've specified ([Ctrl]+[F9] in this case). It will then call the `IPAddress` function whenever this is pressed. A function can contain as many lines of code as you need, so immediately, this gives you an easy way to run any of the scripts you might have created before. You can launch programs, create Word documents and more. In this case,

though, the `IPAddress` function is a single line that includes something we've not seen before: a macro. You can spot Autolt macros because they begin with an '@' symbol and, in use, they're replaced by whatever the particular macro specifies: in this case, 'IPAddress1' will generate the IP address of the first network card. There are all kinds of other macros, though, covering everything from the date and time (@YEAR, @HOUR) to system information (@OSName, @ComputerName), folder details (@StartupDir) to Autolt-related information (@AutoltVersion).

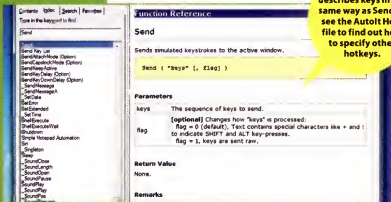
The final While/Wend statements are used to create a loop. The condition at the top is evaluated to see if it's true, so for example, it might read 'While \$KeepGoing = 1'. If the \$KeepGoing variable was 1, Autolt would process all statements down to the Wend, jump back to While and test \$KeepGoing again. But in this case, a condition of 'True' will always be True, so Autolt will cycle forever, or until the user closes the script. That's a lengthy explanation, but the script couldn't be much simpler. Run it, and whenever you press [Ctrl]+[F9] inside a textbox or text editor, Autolt will insert the IP address of your first network card. Is this no use to you? Go and explore the macros: it could just as easily be the date or time that's inserted into the text.

## EVENT-DRIVEN SCRIPTS

Apart from being a convenient way to launch a script, the HotKeySet example showed that Autolt code doesn't simply have to progress in a linear way, one line after the next. It can also respond to what's going on in the system, with different parts of the script called as and when required. This is known as event-driven programming, and it's a powerful technique. Here's another example that builds on the COM principles we examined in the previous part of this tutorial:

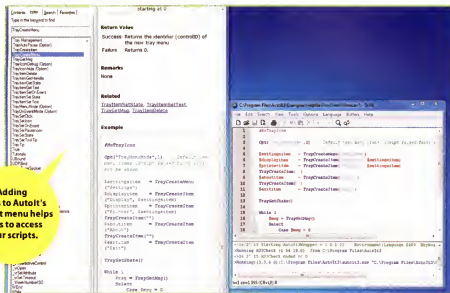
HotKeySet describes keys in the same way as Send — see the Autolt Help file to find out how to specify other hotkeys.

```
$oOutlook = ObjCreate("Outlook.Application")
$hook=ObjEvent($oOutlook, "oOutlook_")
```



## EASY DOWNLOADS

RapidQueuer is an interesting Autolt script that tries to simplify the process of downloading files from RapidShare (if you don't have a Premium account). It'll accept multiple links, then download them one at a time, clicking each download link itself so that you don't have to hang around and do it yourself. Grab yourself a copy from the Autolt Forums at [www.bit.ly/bV4V6N](http://www.bit.ly/bV4V6N).



Adding items to AutoIt's context menu helps users to access your scripts.

Sleep(3600000)

Func oOutlook\_NewMail()

MsgBox(0, "Alert", "A new message has arrived!")

EndFunc

In this script, we're creating an instance of Outlook and then using the `ObjEvent` function to receive information about what's happening within the program. The `Sleep` statement tells AutoIt to pause for one hour. And because one of Outlook's events is called `NewMail`, our `'oOutlook_NewMail()'` function will be called every time a new message arrives. In this case we're simply displaying a pop-up message when that happens, but you could choose to do other things such as run a program, update a file or send simulated keypresses to Outlook.

Outlook has many other events you can intercept. These can let you know when users open, save, post and otherwise manipulate items, and if you graduate to the level of AutoIt expert then you can use these to add functionality to the program.

## TRAY APPLICATIONS

HotKeySet gives us a keyboard interface to access particular functions, but in many cases you'll want some kind of visual indication. There's already a good candidate for this in the AutoIt system tray icon. So why not add options to the icon's context tray menu to help launch particular tasks? Here's how it works:

```
Opt('TrayMenuMode', 1)
Opt('TrayOnEventMode', 1)
Global $hNote = TrayCreateItem('Run Notepad')
TrayItemSetOnEvent($hNote, 'Process TrayMsgs')
While True
Wend
Func ProcessTrayMsgs()
Switch @TRAY_ID
Case $hNote
Run('Notepad.exe')
EndSwitch
```

## USB SECURITY

Total USB Security ([www.usbsecurity.co.uk.org](http://www.usbsecurity.co.uk.org)) is an AutoIt-written tool that claims to protect your PC against USB devices with malicious autorun code. The source isn't yet available as we write, so we can't vouch for its quality, but the idea is interesting — check out the link above to discover more about the project.

EndFunc

The first `Opt` commands set AutoIt options, telling the program to clear its menu and accept options that we'll define. The `TrayCreateItem` function adds a 'Run Notepad' menu option to the system tray icon, and then `TrayItemSetOnEvent` tells AutoIt to execute the `ProcessTrayMsgs` function every time the user chooses a menu option [another event-driven option].

Inside that function is something we haven't seen before: the `Switch` statement. This takes the value specified [in this case the ID of the option the user has chosen], branches down the `Case` statements until it finds a match and then processes the statements you've specified. In a regular script you'd probably use `TrayCreateItem` multiple times to build up a menu, then have many matching `Case` statements, each of which would contain the matching AutoIt code.

And the end result? Once launched, right-clicking the AutoIt system tray icon will display a 'Run Notepad' menu option, and choosing that will cause AutoIt to execute the code we've specified following the `Case $hNote` statement. In this case the code is trivial, but again, it could be replaced by whatever scripting functionality you might need.

This is a useful start, but explore the AutoIt Help file and you'll find plenty of other useful tray-related functions. Inserting a line like `TraySetToolTip ('Sending email')` will set the tooltip that's displayed whenever

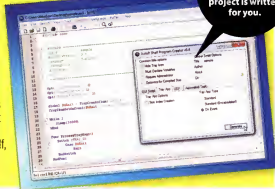
## GENERATE AUTOIT SCRIPTS AT A CLICK

As you become more experienced with AutoIt, you'll notice that many scripts begin in the same way. If you're writing something that will add menus to the AutoIt system tray icon, for instance, you'll always start by setting the various options before adding tray menu items and a loop to process them.

You could add all these lines manually, but the Shell Program Creator, itself an AutoIt script, offers a better way. Download the code ([www.bit.ly/cwbnvba](http://www.bit.ly/cwbnvba)), save it as an AU3 file and run it, and you're able to choose the type of script you want: a tray application, GUI, automated task and more.

Each can be configured with various options, then you simply enter a name into the Title box and click 'Generate' to create a sample script.

Just as with KODA, this is a template: the outline of what you need. For instance, a generated tray app will only add one menu option: 'Exit', which closes the script down. This is a quick way to get started with any AutoIt project, though, and a good example of GUI design in itself, so it's worth adding to your AutoIt development toolkit.



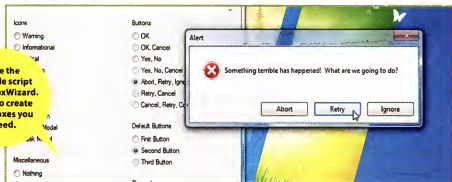
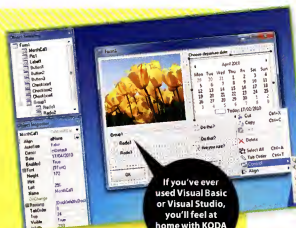
## EASY FORM DESIGN

Building an Autolt script the manual way is a lengthy process, involving much trial and error. Our advice? Don't bother — KODA ([www.koda.darkhost.ru](http://www.koda.darkhost.ru)) makes UI design much easier. Download the program, unzip it and run 'ld.exe' to see the form designer. The Form1 window represents your interface and can be resized.

Click 'Label' on the toolbar, for instance. Move the mouse over Form1 and drag out the shape of your control. Release the button and you've added a label. To change what the label says, click in the 'Caption' section of the Object Inspector and enter 'Program to run'. Now click the 'Input' control on the toolbar and draw it under

the label. Note that you can resize and reposition it afterwards to make it neater. You'll want to alter the default text (Input1) to something more useful, so click it and change its 'Text' field in the Object Inspector to Notepad.exe.

Finally, click the 'Button' control on the toolbar, draw that on the form under the other controls and use the Object Inspector to change its caption to 'OK' and its name to 'OkButton'. You've now created a quick interface for a program Run box. Click 'Tools > Generate Form Code' to see the script, click 'Copy to Clipboard' and paste it into the script you want.



the mouse cursor hovers over Autolt's system tray icon, for instance. If you want to draw attention to some status problem instead then you could insert the line `TraySetState(4)`.

### ASKING THE USER

The Autolt system tray icon provides a simple way to deliver information to users and allow them to choose the script they'd like to run, but that's just the start. In many cases you'll need to ask users directly for input — to type a filename, number or some other value that you'll use in a script — and the simplest way to do that is with the `InputBox` function. Here it is in action:

```
$x = InputBox('Step 1','Type a number')
$y = InputBox('Step 2','Type another number')
$answer = $x & ' multiplied by ' & $y & ' equals ' & $x*$y
MsgBox(0,'Calculator', $answer)
```

The first value provided to the `InputBox` function defines its window title, and the second is the text prompt. So in this case the user is asked to type two numbers, which are then stored in the variables `$x` and `$y`.

The third line then constructs a sentence based on those variables before calculating the result of multiplying them.

The final line uses another handy communications function, `MsgBox`, to display

the answer to the user. (This has considerably more power, though. By changing the flag value from the 0 value used here, we could add different buttons — 'OK' and 'Cancel', 'Abort', 'Retry' and 'Ignore', 'Yes' and 'No' — set the default button, add icons, set the window to be always on top and more.)

Despite all this flexibility, the end results are ugly, particularly with `InputBox`: these functions are far more about their simplicity than any sort of visual appeal. If you want to create something that looks good then you'll need to create a full graphical user interface for the functions.

### DESIGNING A GUI

The good news is that Autolt has all the tools you need to create an attractive user interface. The bad news? Here's a sample script:

```
Opt('GUIOnEventMode', 1); Change to
OnEvent mode
GUICreate('Important warning!', 200, 90)
GUICtrlCreateLabel('Something bad has
happened!', 30, 20)
$okButton = GUICtrlCreateButton('OK', 70, 50,
60)
GUICtrlSetOnEvent($okButton, 'OkButton')
GUISetState(@SW_SHOW)
Sleep(20000)
```

```
Func OkButton()
MsgBox(0,'Click','You clicked OK!')
EndFunc
```

The `GUICreate` statement here creates a window 200 pixels wide by 90 pixels high.

`GUICtrlCreateLabel` adds a label, essentially just a text caption, starting 30 pixels from the left and 20 from the top.

We then add an 'OK' button, tell Autolt to call the `OkButton()` function whenever it's clicked, display the window with `GUISetState` and wait for 20 seconds. Every time you click 'OK', the `OkButton` code is called.

This is a very simple example, but Autolt can go much further: it also has commands to create checkboxes, listboxes, date selectors, picture controls, treewises, textboxes, context menus and a whole lot more. The basic principles remain the same to set these up: buttons are clicked, scrollbars are scrolled, list options are chosen and every event can call some part of your code to respond accordingly.

The complexity comes more in designing the windows and placing your controls in the right position, which if you do manually will require time and effort. Fortunately, there's a simple, free alternative in KODA ([www.koda.darkhost.ru](http://www.koda.darkhost.ru)), a WYSIWYG form designer that speeds the process up considerably. In just a few seconds you can resize the dialog window, add the controls that you need and generate the script: it's an amazing tool.

And that's it: the end of this series. We've shown you how Autolt can replace batch files, automate applications, customise Microsoft Office, send emails, control Skype and more, all from its own custom interface — but this is just scratching the surface.

Browse the boxes to see how others have taken this incredibly useful development tool even further, then go to work creating some scripts of your own: there's no better way to automate, control and customise your PC than through this powerful app. [www.koda.darkhost.ru](http://www.koda.darkhost.ru)



# 94 masterclass

## STEP-BY-STEP TRAINING

**IN THIS  
SERIES**

Did you build a web site and nobody came? **Ash Nallawalla** walks you through everything you need to know in order to optimise your web site for search engines so as to generate traffic and get hits on your site.

**APC  
EXPERT**



**ASH  
NALLAWALLA**

Ash Nallawalla is a search marketing consultant who has managed natural and paid search traffic for some of Australia's largest web sites. He is an internationally acknowledged expert in search marketing and he runs an online SEO training website. Ash can be contacted at [ash@melbpc.org.au](mailto:ash@melbpc.org.au) or via his blog at [www.nelmagellan.com](http://www.nelmagellan.com).

**WHAT'S  
NEXT?**

**PART 10**  
JULY 2013  
AFFILIATE  
MARKETING

### PART 9 SEARCH ENGINE OPTIMISATION

# Social media optimisation

Social media gets a mention almost every day in the news. Is it a passing fad or something you can exploit for your site?

Let's skip the introductory information about MySpace, Facebook and so on. Chances are that you know what they are. Instead, let's dive deep into some major social media platforms, be it a social network or a social bookmarking tool.

Our interest is entirely selfish — can we make money with these tools? Or, more tactfully, what role does social media play in a search engine optimisation campaign? This is known as Social Media Optimisation (SMO), and its currency is clicks, tags, ratings, reviews, bookmarks and opinions.

#### SOCIAL MEANS PEOPLE

Social networks are used by people from different demographic profiles. Facebook is used by all age groups. There are 'conversations' taking place about companies in these networks. Some are positive; a lot are not. Understanding your audience requires accurate identification of their demographics. It also requires speaking their language, including slang or industry jargon. This will help you to identify these conversations and engage in a mutually beneficial manner.

#### GOOD AND BAD NEWS

First, let's keep expectations in check. In most cases, links in social media are usually not followed. This means a search engine spider will not follow them to a linked page or transfer any PageRank link juice (in the case of Google). A normal SEO campaign requires a healthy dose of relevant incoming links, as we have stressed throughout this series. So why should we bother with SMO?

The good news is that some social media links do matter for SEO link juice purposes, and even the ones that don't have an indirect benefit. SEO can help a social media site to appear in search results and bring in traffic.

Google already displays rich snippets for certain sites, for example, rating stars below restaurant sites that are using Microformats. In the pictured example, the first restaurant in question ranks #1 for its own site and both of them rank #1 and #2 respectively in the Local map results at the top of the page (also known as the Onebox).

It's not clear whether the ratings stars directly affected the ranking, but they certainly attract clicks, which in turn improves ranking.

#### MEASUREMENT

You can't optimise something that can't be measured. It goes without saying that your web site needs to be enabled with a good analytics package such as Omniture (for large companies) or Google Analytics (for the rest of us). This will tell you through the referrer tags how many visits came directly from a social site.

Should you count Visits or Unique Visitors? Each plays a role — for a site that delivers value for each subsequent visit, such as an online information resource or portal, a visit is an important usage metric. If you are measuring branding, then a Unique Visitor count is important.

For many commercial sites, a Conversion is a powerful metric, but tracing it back to the source of the visit is equally important. Knowing whether, say, Facebook works better than Twitter will tell you how to allocate your marketing efforts. Some businesses will do well through one medium, and others through another. This may be a matter of demographics or simply the skill and popularity of the promoter.

Don't overlook the value of 'micro conversions'. These are secondary goals that may lead to a full [macro] conversion later on. Prominent Google staffer and analytics guru Avinash Kaushik gives the example of a job application as a micro



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The screenshot shows the Digg homepage. At the top, there's a navigation bar with categories like Technology, World & Business, Science, Gaming, Lifestyle, and Entertainment. Below this is a 'Trending (beta)' section featuring a story about 'Suicide Bombers Target Embassies In 42' with a large '6' and '05' badge. To the right, there are two restaurant listings: 'Casa Azteca - Milpitas, CA' and 'La Milpa Mexican Restaurant - Milpitas, CA'. A callout bubble points to the top of the page, stating 'Getting your submission to Digg's home page is the goal.' Another callout bubble points to the rating stars on the restaurant listings, stating 'Note the rating stars in this Google search result.' A third callout bubble points to the 'ashnallawalla' profile, stating 'Word-of-mouth is a powerful marketing tool but it can't be manipulated by the business owner. An unsolicited recommendation by a customer will be seen by all their connections, as will a negative review.'

conversion — a good outcome for a company.

Since we are looking at SMO, we should look at the number of Facebook fans, Twitter followers, newsletter subscribers and so on as micro conversions. Those represent people who are interested in your site or your personal opinions — never take them for granted, as they can vanish with a single, decisive click.

## DIGG

Digg.com is perhaps the best known social news site. People submit a URL and others can vote for or against it. In its jargon, a URL can be Dugg or Buried. You can see that Digg readers like news, cartoons, funny videos, useful stuff, but they don't like business URLs. The latter tend to be submitted by SEO link builders who should know better.

If you have your SEO being done by an agency, ask if any SMO has been done and ask to see the Digg page in question. If you can find the item, it will have one Digg and possibly more than one Bury against it.

If a story gets to the home page, the site can

expect thousands of visits but unless you are a global brand or are monetised through a CPM banner ad scheme, ask yourself if this is any value to it.

## STUMBLEUPON

StumbleUpon.com is a social bookmarking and rating/review site. You can install the StumbleUpon toolbar and vote for or against web pages as you are looking at them. If you are the first to find the page, you are asked to submit a small review, else you can give it a thumbs up or thumbs down vote.

## FACEBOOK

Facebook fan pages are indexed by search engines. Their links are nofollowed, so there is no direct SEO benefit, but of course there is tremendous traffic value. Such links can also constitute Citations, which are believed to be noted by search engines. Millions of Facebook users can find your page without needing to leave that platform and some might choose to follow links to external web sites.

Word-of-mouth is a powerful marketing tool but it can't be manipulated by the business owner. An unsolicited recommendation by a customer will be seen by all their connections, as will a negative review.

## DELICIOUS

Delicious.com, owned by Yahoo!, is a social bookmarking site. You can share your bookmarks and look at URLs saved by others. When several people bookmark the same site, this count is displayed, with the most popular URLs being promoted to the home page. Almost every link on the site is nofollowed, so no link love here.

## TWITTER

Twitter offers a few ways to get more attention. The first requires you to use a popular hashtag in your tweet, such as #ipad. This is important — should you choose a different, less common one for the topic, say #tablet or #apple, then your contribution won't be counted with the one that's more common. The most currently popular topics are shown to the right of the Twitter interface and they include both search terms and hashtags.

Some hashtags are transient, such as ones promoted by event organisers. Even if your event is of minority interest — say a specialist scientific conference — you should publish the official hashtag in all your collateral, eg. #ANZ2010. This will allow attendees to follow tweets related to the event, such as last-minute changes, live opinions from participants, questions to a panel, and so on. All the followers who care to look up the hashtag can find out what it's all about. If you don't take this lead, people might make up more than one

## Trending topics:

- [Happy Easter](#)
- [Donovan McNabb](#)
- [Washington Redskins](#)
- [#nowplaying](#)
- [ESPN](#)
- [#ITmakesmemad](#)
- [Justin Bieber](#)
- [#yankees](#)
- [Baja California](#)
- [#WeAdmireKStew](#)

Twitter trending topics.

Results for **ipad** 0.18 seconds

More than **796** more results since you started searching. [Refresh](#) to see them.

**ConanObrien:** Just got the new iPad. This amazing device has already revolutionized the way I use a calculator.  
about 18 hours ago from web [Reply](#) · [View Tweet](#)  
2000+ recent retweets

**ActuallyNPH:** I want an iPad SOOOO...much...it, it, the fee- it...flame. Flames FLAMES? On the side of my face...breathing, breathi- heaving breaths...  
about 18 hours ago from web [Reply](#) · [View Tweet](#)  
300+ recent retweets

**darthvader:** For the record, your Dark Lord doesn't wait in iPad lines. That's what lackeys are for.  
about 16 hours ago from [Twitterrific](#) [Reply](#) · [View Tweet](#)  
100+ recent retweets

The three most retweeted items rise to the top.

hashtag and the community will be fragmented.

Remember, Twitter also acts like a search engine and enables you to find out current opinions or get news a little faster than through a search engine.

Not to be outdone, Google also displays a scrolling window of live tweets for certain searches. Yahoo! Search will also start to show Twitter and other social media results. This is nice but you can't rely on someone searching for your topic a second or two after you hit the send button.

## YOUTUBE

Once you get past YouTube as a video sharing service, you soon realise that it is a social networking tool. Look at viewers' 'favourite' videos and some of them go to the submitter's web site.

YouTube videos have enormous ranking ability thanks to Google Universal Search, which can place a few video results on the first page. The key to ranking videos is to use the right keywords in tags and descriptions. Pick the right category and give the video a relevant, searchable title.

A popular video will get a lot of page views and many viewers will refer it to others, resulting in a viral campaign. This can work for a company, as in the case of Blendtec and its 'Will it blend?' videos where they blend anything from iPods to broomsticks. Or in the case of United Airlines, a Canadian musician whose guitar was broken made a video about his ordeal that has had over 8 million views to date. Look for 'United Breaks Guitars'.

## RETENTION

It's hard enough to get fans and followers but relatively easy to lose them. Knowing and

understanding your audience is crucial to SMO. Most people's Facebook page connects them with family and friends; however, business users are likely to attract customers and other followers, who may not be interested in your views on any other topic. This happens more with Twitter or blog followers.

A free service called Qwitter will send you an email when someone unfollows you and it mentions your last tweet. People unfollow for many reasons, but when you get several unfollows following a particular tweet, you have to rethink your tweet behaviour.

Every time I write that SEM is not just about paid search but that it includes SEO and SMO, I upset someone who thinks otherwise. They unfollow me. My writings are mostly about search marketing and a little about product reviews, so I avoid tweeting about a sports game I am watching, the weather, my mood or what I am doing. If you have this quandary, just open a second, personal account for all your off-topic posts.

## FACILITATE

Social media can't help your web site properly until it facilitates social interaction. You may have seen those 'Share This' icons that enable you to click a button and send the URL to Digg, StumbleUpon, Twitter, Facebook, ratings/reviews and so on.

All well and good for some web sites, but try to display only the right icons for your site. If you are a manufacturer of industrial chemicals, then Digg is unlikely to be of help unless your company has a major environmental catastrophe.

Indeed, some businesses should not display any such icons — people will still discuss what they will without the aid of such help. Businesses

with wide consumer appeal, such as restaurants, are ideally suited to display social media buttons.

## PARTICIPATE

You can launch a great campaign, but you also need to participate in it. Try to secure your company name as a username on all relevant social networks. Tools such as [Knowem.com](#) can help you to query many such networks at once.

Along with fans you may also attract detractors and saboteurs with an agenda. By anticipating and ignoring such distractions, you can keep the discussions on track. Avoid direct confrontation with detractors but instead present facts as best as you can.

When you see other people Digg, retweet or Stumble your campaign, help out by doing the same. As long as you are not seen to be the first to promote your own campaign, nobody will mind or notice.

## BACKLINKS

A great social media campaign will create a buzz through numerous channels. People may even write a blog post about your site or campaign. Others will debate it.

As long as those sites are indexable by a search engine, those links will count towards your backlink profile. As you know, Google likes quality links and rewards with a higher ranking. So, the incremental benefits of a successful social media campaign will be felt for months to come.

We have scratched the surface of SMO and haven't even discussed older social networks such as Forums and Newsgroups. They will be covered in the near future. Next month we will take a deeper look at affiliate marketing and give you a challenge. [\[1\]](#) [\[2\]](#)

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For items costing more than \$1,000, you need to use one of two depreciation methods.

APC  
EXPERT



DAVID  
BRAUE

David is a multiple award-winning journalist who has been writing on Australia's IT industry since the release of Windows 95. He's one of the few able to cover business technologies as easily as consumer tech.

# End-of-year tech deductions

It's EOFY again — do you know where your deductions are? **David Braue** takes you through a checklist.

It's end-of-financial-year time again: you're chasing up outstanding invoices, cleaning up your pile of receipts, trying to book in some time with your accountant and working through your mental checklist to make sure you've wrapped up your business affairs before the clock ticks over to July 1.

While it's too late to benefit from the government's Small Business and General Business Tax Break — which provides a 50% deduction for tangible assets purchased before 31 December 2009 — there are still ways to optimise your technology-related deductions. In amongst all this business, don't forget to review your technology strategy — and consider bringing forward some purchases that will both help you modernise your office and deliver some tax benefits in the process. (NB. The below advice is for guidance only; check with your financial advisor to confirm its applicability to your particular circumstances.)

## STRAIGHT DEDUCTIONS

As always, it's possible for small businesses to deduct the business-related proportion of most depreciating assets costing less than \$1,000, for the year when you first use the asset or install it, ready for use. From a technology perspective, this would include the purchase of low-cost notebooks, servers, external backup hard drives, printers, and other pieces of hardware.

If your home or office network is looking a bit tired,

it's worth spending up before June 30 to get with the program. Retire old fax machines, standalone printers and scanners in favour of newer all-in-one models with such accoutrements as duplex printing and scanning, photo and/or CD printing (depending on your needs) and so on. To reduce your power bills and simplify your network, consider replacing standalone broadband modems and wireless routers with single devices combining both functions.

If you have a bunch of ageing notebooks with terrible battery life sitting around, consider whether you can replace them with cheaper netbooks that are more than adequate for getting online and running standard productivity applications. Consider whether portable devices — whether standalone mobiles or portable data terminals like iPod touches — may offer real business value, for example as time loggers or data-entry tools for staff who work in the field. And do a check of ancillary devices like mice, keyboards and even monitors: if you're struggling to do business because of an old and faded screen, or you'd be more productive with an ergonomic keyboard, now's the time to upgrade.

Remember that the full-depreciation rules only apply to small-business purchases, where the implication is that they will be used 100% for business. If your gear is being used for personal purposes, the ATO expects you to determine the personal/business usage split and pro-rate your deductions accordingly. And if you've ever audited,



you'll need to be able to justify the business use of the items in question — so be sure you have a career as a games developer or journalist before you try to write off the PS3 you just bought.

As you near June 30, don't forget to frequent the end-of-year technology sales at retailers like Harvey Norman, Officeworks, JB Hi-Fi and others. They all want to move their stock, and it's a good time to find amenable prices on technology you need. Play their price-matching guarantees against each other, and remember to use online price comparators like **www.staticice.com.au** to see if you can get a lower price for them to beat.

#### BIGGER-TICKET ITEMS

For items costing more than \$1,000, you need to use one of two depreciation methods — prime cost and diminishing value [the ATO's how-to guide can be found at <http://bit.ly/cJu8P7>].

Prime cost splits the total cost of the item across the useful life of the object, giving you a fixed deduction every year: a \$3,000 notebook computer with a useful life of three years, for example, would provide a \$1,000 deduction

every year. The assumption is that it will be disposed of after that time.

Diminishing value allows for larger deductions up front but increasingly small deductions over time. Calculate it in any year using the residual value X the percentage of the year you had the item in your possession X 200% divided by the number of years in the asset's effective life. For example, our \$3,000 notebook would deliver a \$2,000 deduction in the first year, \$666 deduction the second year, and \$444 the third year. Once the residual value drops below \$1,000, you can transfer its remaining value to a low-value pool, where low-cost items can be depreciated at a fixed rate of 37.5% per year.

While depreciation is an important benefit for any business using technology, it's not necessarily essential to rush out and shell out thousands on new gear if you can't afford it.



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# TEGA

## THE OTHER TABLET!





# An EOFY checklist

Use the last weeks of the financial year to revisit your technology infrastructure with an eye to tax effectiveness. Here are a few points to consider:

- Products up to \$1,000 are immediately tax-deductible.
- Purchases over \$1,000 must be depreciated over their useful lives.
- Replace multiple old devices with all-in-one printers and multifunction ADSL and wireless routers.
- Rationalise your notebook fleet, using low-cost (and immediately-deductible) netbooks to replace expensive notebooks.
- The monthly cost of rental and lease agreements is deductible — but watch the effective interest rate!
- Software-as-a-service (SaaS) monthly contracts can help.
- Up to 12 months' rental, lease, SaaS, network management, printer or other service agreements for FY2010-11 can be prepaid.
- Don't forget to claim any entitlements under the Small Business and General Business Tax Break, which expired on 31 December 2009.

Finance and leasing options are also a viable option worth considering.

Because depreciation is pro-rated according to how much of the tax year you actually had an item, buying four new computers on June 27 isn't going to provide much actual tax benefit. You're best to buy on July 1, when you can claim a full-year deduction the year after.

## SPREADING OUT THE COST

If you're using a lot of technology in your business, or if you'd just rather spread out your payments, consider one of the many finance or leasing options out there. You'll be able to deduct 100% of the business-related costs — although it's important to remember that this doesn't translate into getting 100% of your money back; you only get back the tax you would have paid on the money you spent on your lease.

In other words, a company at 30% tax rate would only recover \$30 for every \$100 spent on technology rental. This is one reason why it's important not to go crazy buying new gear, since it is not (as some people perceive) free. "Never go into a transaction purely for a tax deduction," warns accountant and financial planner Adrian Raftery, director of ARW Chartered Accountants ([www.arw.com.au](http://www.arw.com.au)). "Firstly, check if you need it — and then, if you do, ensure that it is tax deductible if possible, because it will help reduce the overall cost to you. And always look at the after-tax impact on your cashflow."

Raftery also warns about the actual interest rates charged on many commercial leasing programs, particularly those promoted through mass-market retailers.

Effective interest rates on some schemes mean you could end up paying up to 45% interest — making it more cost-effective to just buy the products using your credit card at 20%. This would allow both deductions for the interest and the normal depreciation strategies described above.

Regular payments do have one benefit: if you're locked into a contractual agreement for the supply of goods, you can prepay up to 12 months' expenses — and claim the entire cost as a tax deduction for the year when you prepaid them. You'll still pay the high effective interest rates, but this approach can deliver a nice deduction if you prepay before June 30. It's worth noting that this approach can also be used for other types of service agreements. For example, printer maintenance contracts, network management contracts, phone services, PABX rental, and even monthly per-user fees for software-as-a-service (SaaS) would all potentially qualify for this.

This last point may be enough to convince many small businesses to look into SaaS for the first time, providing always-updated software to manage a broad range of back-end functions. SaaS can be a great way to access software that might normally be too expensive for your business to afford — and prepaying makes it a great EOFY investment. [bit.ly](http://bit.ly)

Now could be a good time to update your existing office technology.



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\*Conditions apply. 15% cashback via redemption based on printer purchase price (including GST) and including any accessories and extended warranty purchased with the printer. Maximum redemption of \$500 cashback per printer. Consumables are not included. Special pricing doesn't apply. Visit [www.fujixeroxprinters.com.au/promotions](http://www.fujixeroxprinters.com.au/promotions) for full terms and conditions. Eligible printers for this promotion are as follows: DocuPrint 206S, Phaser 3100MFP / X, DocuPrint 3055, Phaser 3435DN, DocuPrint 340A, Phaser 4510, DocuPrint C1190FS, Phaser 5550, DocuPrint C2120, Phaser 6360, DocuPrint C2200, Phaser 8560, DocuPrint C2255, Phaser 8560MFP, DocuPrint C3055DX, WorkCentre 3210, DocuPrint C3290FS, WorkCentre 3220, DocuPrint C3300 and WorkCentre 4250.



# games

HIGH-PERFORMANCE PLAYTIME

## Toprate

Hit or miss...

### DARKSIDERS

From beginning to end, I've had serious doubts and questions regarding Darksiders. Not the part about getting to play as War — yes, the same War that hangs out on a horse with three other equally scary fellows — and unleashing unholy (or holy depending on which way you look at it) justice to the inhabitants of Heaven and Hell alike, cause that bit sounds awesome. What I was concerned about was that the game was going to be too easy... this is after all WAR we are talking about. How can anyone be better at waging war, than War? It's almost like trying to persuade someone to give themselves an uppercut. That minor mind-twitch aside, gameplay in Darksiders felt a little too familiar and that's probably due to the fact that the core gameplay elements have been done before... and better. Following the argument that there're way too many games out there and a limited amount of time, it's hard to recommend Darksiders.



It's obvious from the graphics that a lot of work has gone into the game.

## Mass Effect 2

**Troy Coleman** dies shortly after fade in; takes a few upgrades on rejuvenation.

Walk off that death Commander Shepard, there's no time for lollygagging because the system is under threat again. That's right, Shepard is back, and thanks to the wonders of science, was even offered the option of a gender-change at rejuvenation — complete with chesticle upgrade and voice acting to boot. It's only taken the folks at BioWare (Dragon Age: Origins) a few short years to completely strip down and recompile the absolute epic action sci-fi RPG that is Mass Effect. And haven't they done a lovely job? The core role-play set-up of Mass Effect 2 (ME2) is the same: choose one of the six available class archetypes, take command of the ship Normandy and cruise space with a small crew in an exploratory mission-based environment to ultimately save the galaxy. It's obvious that a lot of work has been done on the beautiful graphics as well as the optimisation and refinement of the code-behind-the-wheel. As a final product and in direct comparison to the first, ME2 feels light years ahead of its predecessor — an elegant inventory system and menu screen as well as streamlined and efficient combat, weaponry, armour and health/healing systems replace the once bloated and outrageously complex, cumbersome and flow-restrictive systems of ME1. There's genuinely, and intentionally, only one element for players to concentrate on: superb story-telling. On the negative: progress and ultimately success is somewhat reliant on the progressive improvement of weapons, armour and health — tediously gathering resources. Bring on Mass Effect 3.



### IRON MAN, MUCH?

As a final product ME2 feels light years ahead of its predecessor.

AVAILABLE PLATFORMS

PC-DVD

XBOX 360

CONTACT EA

ONLINE masseffect.bioware.com/

PRICE \$109.95

✓ Epic sci-fi RPG action.

✗ Researching technologies is grindy.

★ VERDICT ★★★★★



## Classic Game

### THE PINNY PARLOUR

Burleigh Heads Piny Parlor, Gold Coast circa '87 holds many a fond memory for me. I washed car windows at traffic lights for change so I could fuel my meth-like addiction to arcade gaming. In retrospect, the games were probably terrible; but in my 10-year-old mind, there was nothing better. This month we'll take a look at:

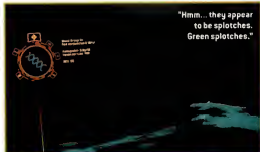
### HEAVY BARREL

Heavy Barrel was a one- or two-player top-down army kill-everything-in-sight game that used a rotatable joystick to control the player shooting direction. As well as upgradeable grenades and weapons, the 'heavy barrel', a super weapon that had only 30 seconds of firing time could be 'built' by picking up six pieces as progress through the game was made. All in all it was a couple of hours of wrist-cramping awesome, and all for only 40c. There's a great gameplay video just sitting on the internet waiting for you to check it out: <http://bit.ly/cclXav>. But for those who want to relive the glory (sans rotary stick) head over to <http://bit.ly/duemdc>

## Heavy Rain

**Troy Coleman** doesn't have the patience or manual dexterity essential for Origami.

What level of interactivity is the bare minimum for video to step over into game territory? Heavy Rain is a beautifully traumatic story that delves into the depths of an already troubled life — that of our protagonist Ethan Mars — and pushes it even further to explore what lengths a man would take to salvage himself and save his son from a serial killer nicknamed Origami. Jumping into the game, it quickly becomes obvious that it's a journey of self discovery. No mini-map or indicators of any kind; players are given a bare minimum of choices that come as floating hints around the player. Shower. Work. Music. Coffee. Interacting with the world is kinda nifty in that — everything that can be used is assigned a series of analogue stick motions. For example, opening a door might involve a downward motion followed by circling the stick around to the right. It's a little awkward at first but soon becomes fluid and, to be honest, genius. Giving nothing away, the ending is also excellent in that it is dynamically dependent on actions taken during the lead up; any of the core characters — four in total including Ethan — may see death before the curtain falls, and in delivering the story this way, it serves to add a sense of fragility to pixelated people. These emotions feel strange to someone so used to the empty death/respawn/shoot-'em-in-the-face routine found in most titles. An interesting experiment in gaming, and I genuinely look forward to the digital space where the envelope lands.



#### AVAILABLE PLATFORMS

PS 3

- CONTACT Sony Computer Ent.
- ONLINE <http://heavyrainps3.com/>
- PRICE \$109.95

- ✓ Stunning graphics; great storytelling; nifty control scheme.
- ✗ Is it a game or an interactive movie?

VERDICT ★★★★★



#### AVAILABLE PLATFORMS

PC-DVD PS 3

XBOX 360

- CONTACT Electronic Arts
- ONLINE [www.battlefield.com](http://www.battlefield.com)
- PRICE \$109.95

- ✓ As always, great multiplayer.
- ✗ Lost a lot of the 'flavour' of the first Bad Company.

VERDICT ★★★★★

## Battlefield: Bad Company 2

**Troy Coleman** thought the last mission was the last mission before retirement.

There was something distinctly fresh hanging in the air when I first gave Battlefield: Bad Company a spin. Aside from the highly destructible environments, highly addictive and fun single player and superb multiplayer, it carried with it the distinct feeling that it really wasn't taking itself too seriously... and that's exactly what made it so cool. We haven't seen each other for a couple of years now, but I can say with positive assurance that one of us hasn't aged well. Battlefield: Bad Company 2 picks up more or less where the second left off. Our B-team is no longer the cannon fodder sent in before the real troops arrive; they're no longer gold-savenging looters and they no longer irreproachably deliver piss-funny dialogue in light of their explosive and extremely hostile surrounds. The boys are lost, and suffering terribly from a desire to strut in the same room as the Modern Warfare 2's of the world. It's not all bad though; as a whole BC2 is still very playable; at its foundation it's still a lot of fun to carve a path of destruction through any and (almost) everything standing between you and the little red save-point square. And then there's the online multiplayer which is pure awesome, and what gets it over the line for 4/5.



# Left 4 Dead 2

**Troy Coleman** doesn't like mime artists. . . even zombie ones.

No matter how it's delivered, and with few exceptions (books, film, games) sequels are notorious for being terrible. And I can say wholeheartedly that Left 4 Dead 2 (L4D2) is no exception. It's a timeless classic: the aftermath of an apocalyptic pandemic that turned the population into an infected mass who crave a feed. Four unaffected souls find themselves left behind by the evac chopper and must band together to find a way out by whatever means possible. Let's set it straight for the record: Left 4 Dead was (is) an awesome game that set a benchmark for the quality of its co-op multiplayer. Enter L4D2, which [censorship aside] had so much potential to be just as great. . . if there were any new ideas, anything fresh, anything. . . original. All L4D2 brings to the table is 20 or so new weapons; otherwise it's the same game! Also, for the game to get local release, a few 'adaptions' needed to be implemented which, when broken down meant that all blood splattering / pooling, infected dismemberment / ignition (infected actually mime being on fire) and corpsing (bodies remaining on the ground once dispatched) needed to be removed from the game. Immersion — and game — breaking.



4 AVAILABLE PLATFORMS

PC-DVD

XBOX 360

CONTACT Valve  
ONLINE www.l4d.com  
PRICE \$109.95

✓ Co-op is still reasonably fun; at least we still have Left 4 Dead 1.  
✗ Edits for the AUS audience leave the game almost unplayable.

VERDICT ★★☆☆☆

## Videomate HD Experience, Simply Brilliant



### IP70 Network Camera

- Day and night functionality for any lighting condition
- High Quality Megapixel/HD Image
- H.264, MPEG-4 and MJPEG compression
- Smart motion detection without risk
- Built-in MIC/Speaker to Capture/Send suspicious voice
- Monitor from 3GPP & Iphone/BlackBerry mobiles
- 32 channels ComproView™ bundled
- MicroSD card slot for local snapshot storage



■ Wireless upgrade module available

### IP540 Network Camera

- Pan/Tilt with 4x digital zoom
- Day and night function, operates under all light condition
- Supports Dual H.264, MJPEG or MPEG-4 video streams
- Supports dual streams simultaneously
- Two way audio with built-in MIC
- Support UPnP (Universal plug and play)
- Supports local storage (MicroSD)
- Bundle with powerful 32-channel IP video management software



■ Wireless upgrade module available

### VideoMate E750

- PCIe Interface & certified with Windows7
- Dual tuners for DVB-T TV reception
- PIP/POP feature up to 5 TV windows watching
- SS mode Power Up scheduled recording
- Windows Media Center remote control





## iPadapps

Recommended...

### BABO CRASH HD

\$1.99

Block clearance games are an absolute classic and a must-have on any iPhone, or in the case of Babo Crash HD, the iPad. There's a reason that block games are (arguably) the most popular casual game today: instant appeal, fun and accessibility. Check out the preview video at [www.youtube.com/watch?v=5TE3klrllmM](http://www.youtube.com/watch?v=5TE3klrllmM).



### REAL RACING HD

\$12.99

Racing games are usually one of the first genres to migrate to new hardware and the constant movement of the environments generally showcase the higher end of graphical possibility. Great racing that looks great, even though it is at the high end of the price range. Check it out at [http://firemint.com/?page\\_id=1179](http://firemint.com/?page_id=1179).

### ANGRY BIRDS

\$1.99

Featured in May APC and still on regular rotation in my gaming day, Angry Birds has also made the switch to the iPad. Catapult kamikaze birds at those egg-thieving 'good for nothing but bacon and other swine-related small goods' pigs. Check out the trailers at [www.rovio.com/index.php?page=angry-birds](http://www.rovio.com/index.php?page=angry-birds).

## Twenty dollar iTunes card

iTunes Gift Card

\$20

We look at the best iPhone games each month for under twenty bucks.

I'd argue that there isn't an iPhone in service that doesn't have at least one game app on it; and if there is show it to me... so I can crush it under a hilariously oversized anvil. There really isn't enough time in the day, and in the precious few moments (hours for me, really) a day available to sit back, relax and play a few games. I'm going to make it easy for you by sorting through the junk each month, maximising your fun and making certain your apps won't gather dust after purchase. And all for under twenty bucks.

### TILT TO LIVE — \$2.49

Literal in its title and making beautiful use of the iPhone's accelerometer, the object of Tilt to Live is to deftly — read frantically — avoid being touched by any of the endless onslaught of dots. This is the game fighter pilots use for reflex training... okay, I can't really back that up.

### DOODLE JUMP — \$1.19

It won't take long into a game of Doodle Jump before you'll be cursing your dilapidated hand-eye-coordination. Safely guide the ... well Doodle! I guess, as high as he can go without falling. So much addiction and frustration for only \$1.19

### RANCH RUSH — \$1.19

This is the Farmville for the iPhone, without of course the semi-cooperative multiplayer-ness. But really, who talks to friends on Facebook anyway? Grow crops, milk cows, make cheese, collect honey, and make money all without getting your hands dirty. An addictive little app for literally all ages: my three-year-old plays it.

### ISHOOT — \$2.49

iShoot is basically Scorching Earth for the iPhone. Unlock the repressed memories of being devastated at the hands of office colleagues in this classic last-man-standing free-for-all.

### NEED FOR SPEED: UNDERGROUND — \$5.99

The Need for Speed series on the consoles has been jostled and bullied of late by its street racing competition to the point where it SHIFTeD focus to the track. It's nice that NFS found a firm place in my pants pocket and remains relevant this far down the line. NFS:U is arguably the best racing title on the iPhone at the moment.

### JET CAR STUNTS — \$2.49

An annoyingly fun game where the objective is simply to drive your car to the end of the track, which happens to be a series of broken platforms joined by ramps, jumps and loops, all of which is floating above a bottomless void. Should be a snap.

### ROLANDO — \$3.99

This is Loco Roco for the PSP, and I don't care what you say, but I maintain my stance that Loco Roco is one of the very few decent games on the platform. Rotate the iPhone in almost every way imaginable to help cute blobby creatures navigate a candy-coloured marshmallow land. Fun for all ages and toxicity levels.

## Topfive Shooters...



### BATTLEFIELD: BAD COMPANY 2

This is 'it' right now in terms of online multiplayer, but it's only just nudged out...



### CALL OF DUTY: MODERN WARFARE 2

One of the most visceral and engaging single player FPS titles combined with super competitive online play as well.



### SPLINTER CELL CONVICTION

The new kid on the block (review next month) comes complete with not only great online multiplayer but one of the most fun co-operative story modes ever.



### COUNTER STRIKE SOURCE

It's been around for ages, but still stands up against the competition.



### HALF-LIFE 2

Absolute classic of the genre.



# SHOCK AND AWE ONLINE TOURNAMENT

## FOR APC READERS

Have you always wanted to play in an online tournament but didn't know where to start?

**A** PC has partnered with ASUS and Internode's games.on.net to bring you the world's first online games tournament that includes magazine and web tutoring for gamers with no online gaming experience.

We'll hold your hand all the way. We'll show you how to form a clan, how to enter, and how to excel in online tournament play. And then we'll leave you to fight it out with other clans for glory and prizes.

The tournament is limited to 64 clans of 8 people each, playing each other with the multiplayer game Battlefield: Bad Company 2.

If you've always wanted to play against others in an online tournament but didn't know how, or feared you weren't hardcore enough, this is your tournament.

Go to [games.on.net.com/shockandawe](http://games.on.net.com/shockandawe) to join up, and [apcmag.com/games](http://apcmag.com/games) for full information.





## THE TOURNAMENT

The Shock and Awe tournament starts on Monday, June 28 and goes for seven weeks. To play you need to purchase the game, join a clan of 8 people and register by June 27. You enrol the clan into the tournament by registering at the [games.on.net](http://games.on.net) page at [games.on.net/shockandawe](http://games.on.net/shockandawe). The clans then play each other until the final two square off in the final.

## THE NETWORK

The tournament will be hosted on the servers of Internode's [games.on.net](http://games.on.net) games network, one of Australia's largest and most distributed game network services. In total, Internode's game server farm houses over 50 game servers, plus web and database servers. Games.on.net also host Australia's largest public Steam Content service.

## THE GAME

The game is EA's Battlefield: Bad Company 2, a first-person shooter video game. The gameplay is squad-based, centred around infantry combat. The game features intense realism, with destructible environments and bullets that fall downward due to gravity — but also lets you score points with battlefield tasks other than direct destruction of the enemy, such as repairing equipment or tending to injured personnel.

## THE PRIZES

Each member of the winning clan wins an ASUS EAH5770 CUCORE/201/1G05/A graphics card. This comes with ASUS' exclusive 5.8oz Copper Rod heatsink for faster heat conductivity and up to 11% cooler temperatures. The fork-shaped heat sink provides 22% larger surface area to dissipate heat faster. The card also supports ASUS' exclusive Voltage Tweak technology for extra performance.





# ASUS MASTER CLAN CHALLENGE

Four members of the winning clan in the Shock and Awe tournament will go on to face the ultimate challenge: a death match against the ASUS Master Clan — a clan of four of Australia's best online gamers specially selected for the occasion and given the best possible hardware to play with.

A slaughter of the innocents? Maybe. But we're certain members of the winning clan will want to measure up against the deadliest opponents and technology [see right] we can muster. You never know, in battle anything is possible.

Regardless of the result, APC will dissect how the winners prevailed, with an in-depth tutorial.

For information on this challenge and the gamers picked for the ASUS Master Clan, go to [apcmag.com/games](http://apcmag.com/games).

## MASTER CLAN WEAPONS BY ASUS

### ASUS RAMPAGE III EXTREME

The ultimate gaming motherboard — features the Intel X58 chipset, triple channel DDR3 2200 [O.C.] support and exclusive ROG features like Extreme Engine Digi+, a combination of digital and analog VRM design to provide a more stable platform when you're fragging your enemies. ROG Connect allows you to actively monitor and control your system with your netbook or your phone via Bluetooth with RC Bluetooth!

### ASUS MATRIX 5870/2DIS/2GDS

A combination of the GIGANTIC 2GB GDDR5 memory and the exclusive ASUS Extreme Cooler which allows a 13% cooler temperature and 22% stronger air pressure with the specially designed fan. Additionally, using ASUS' Super Hybrid Engine technology, you can increase performance by up to 19%, which provides you with the grunt you need to play Crysis (yes it can play Crysis).





games • tournament



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**SHOCK  
& AWE**

Head to [www.games.on.net/shockandawe](http://www.games.on.net/shockandawe) to enter our massive Battlefield: Bad Company 2 tournament, brought to you with the help of APC magazine and ASUS. With a stack of massive prizes up for grabs, this is your chance for you and your mates to take gaming to the next level. Registration closes June 27 2010.



# PLAYING SHOCK AND AWE

## THE INTRODUCTORY TUTORIAL

**Bennett Ring** explains multiplayer gaming and what you need to do to join the Shock and Awe tournament, brought to you by APC, ASUS and games.on.net.

### THE RISE OF MULTIPLAYER GAMES

At the end of 2009, an entertainment phenomenon shattered all prior entertainment launches. This event reaped \$432 million of sales in a single day: a video game called Call of Duty: Modern Warfare 2. If there was ever proof that video games are no longer the sole domain of spotty teenage geeks, this launch was it.

Essential to Modern Warfare 2's success,

and the continued growth of gaming in general, is the fact that playing games is no longer a lonely, solitary experience. Thanks to the internet and broadband speeds, this game is incredibly social. While the single-player experience is over in a mere six hours, it's the versus mode, where real players face off against each other in virtual battlefields, that made this game the massive success that it is. When playing online, the rudimentary AI of the single player game is replaced by the cunning and intellect of real human beings, making each and every game a challenge that would make Kasparov sweat. It delivers hundreds, if not thousands, of hours of entertainment — not bad for \$100.

Modern Warfare 2 is the biggest example of an entertainment phenomenon that has changed the way humans play together. The vast majority of today's games have an extensive online component, allowing friends to meet up and shoot each other, even when they're on other sides of the world. And, like any good sport or game, these experiences become even more meaningful when played with a group of friends. Welcome to the world of online teams.

When the first team-based online first-person shooters debuted in the mid-'90s,

so too did the next stage of multiplayer gaming. While initially these games were played between teams of like-minded strangers, organised teams soon began to form, taking part in large competitions. These teams were known as clans, while the competitions were known as tournaments or ladders. Online gaming became as organised as AFL or rugby, with referees, rules and serious competition.

With the release of MMORPGs (Massively Multiplayer Online Roleplaying Games) around the same time, other teams formed for these kinds of games. Referred to as Guilds, these virtual social clubs came into their own with the release of World of Warcraft.

Fast forward to 2010, and online gaming is more popular than ever before. In Australia, tens of thousands of clans and guilds exist already. There are clans for kids, clans for oldies, clans for gays, clans for girls. Whatever social demographic you fit into, there's a clan or guild out there for you. But if you'd rather start your own with a few friends, we're here to show you how. We promise you this: the joy of playing an online game increases exponentially when you're doing it with mates.

So you want to start your own clan or guild, whether to take part in an online tournament, or just to play with on a regular basis? But where to begin?





## 1. SELECT THE GAME

First things first: you'll need to select a game to play. There's no point in creating a clan or guild where everybody plays a different game. Down the track you can expand into different games, but to begin with stick with a single game. Our Shock and Awe online gaming tournament uses the game Battlefield: Bad Company 2. This blockbuster FPS puts you in the shoes of an elite soldier, fighting on large battlefields with the latest weaponry. Due to the larger size of the battlefield, players don't need to have the "twitch" reflexes of other shooters, with tactics playing a larger part than muscle memory. Obviously you're going to need to buy the game, and there's two ways you can go about this. If you've got a generous download allowance, it can be purchased online. The most popular method of doing this is via an application called Steam. Head to [www.steampowered.com](http://www.steampowered.com), install the small client software; US\$70 and five hours later, you'll have a steaming fresh copy of Bad Company 2 installed on your hard drive. Traditionalists can head down to their local game retailer and pick up the game for around AU\$80.

There's nothing like enjoying Bad Company with some good company.



## 2. FORM OR JOIN A CLAN

Now you need the grunts — the men and women who will help your clan fight through the tournament. In our tournament, the clans are comprised of eight players. So either you join one as part of its eight members, or you form one by recruiting another seven members. The first few members are the hardest to find; the easiest place to begin your recruitment drive is with existing friends. [There's a good chance your pals will be interested in destroying strangers online with you.] Next up, it's time to hit local community sites, which will have forums dedicated to your game of choice. To help with the process of finding other clan members, APC has created a special games area at [apcmag.com/games](http://apcmag.com/games). Go there, enter your details, and we will pair you up with other players, with the aim of giving your clan a good spread of gaming ability. Or, you can head to [games.on.net](http://games.on.net), [gamearena.com.au](http://gamearena.com.au) and other local sites, and make a post indicating you're interested in playing with like-minded players. State clearly what sort of people you'd like to play with: if you've got an age limit in mind, let people know. Most importantly, be friendly and patient. No-one wants to play with an egotistical maniac suffering delusions of grandeur.

### 3. BUILDING YOUR BASE OF OPERATIONS

Once your clan numbers start to grow, you're going to need a virtual meeting point. This can be as simple as a private forum or messageboard, or as complicated as a full blown web site.

#### FREE FORUMS FOR APC READERS

Once you've formed your clan, we'll provide you with a private area in which to communicate. There are many places online that will host your forum for a small fee, but APC has partnered with [games.on.net](http://games.on.net) to deliver free clan forums for APC readers at [games.on.net/forums/](http://games.on.net/forums/). To get your free forum, simply email [clanforum@games.on.net](mailto:clanforum@games.on.net) with your request. They'll send you a prompt reply with instructions on how to proceed. Note that your forum is still subject to the Terms and Conditions of the [games.on.net](http://games.on.net) forums and can be moderated by [games.on.net](http://games.on.net) employees, but your area is private from the prying eyes of rival clans. Fear not: that fantastic strategy you've developed to win in Bad Company 2 will remain Top Secret.

Once your forum is live, it's best to write a couple of posts that will be stickied at the top of the page. Firstly, a code of conduct with clear instructions on what is and isn't acceptable will help to keep your rowdy troops in line. Ensure all new recruits read and agree to these rules before giving them full access to the weapons locker!

You'll also want to have a post containing an up-to-date member list. Alongside each member, have their instant messaging contact details, and including a mobile number will come in handy for last minute match substitutes.

### 4. COMMUNICATION IS KEY

According to Napoleon: "the secret of war lies in the communications." A winning team uses communication where its opponents do not. And the best way to let your pals know that there's an enemy tank heading straight for their hiding spot is by telling them with your voice. While most of today's games include built-in VoIP, these implementations can't compete with dedicated gaming VoIP applications. There are several available on the market, free of charge, but we recommend TeamSpeak for beginners. It's easy to set up and allows the use of channels, making it easier to co-ordinate large teams broken up into smaller squads.

Most ISPs have a free TeamSpeak server; [games.on.net](http://games.on.net) has one at:

Server IP: [Tms-1.games.on.net](http://Tms-1.games.on.net)  
Password: [tsign](http://tsign)

It's possible to have dedicated channels accessible only to your clan members — contact the ISP to arrange the setup of these (fill in the form at [games.on.net/pages.php?page=ts](http://games.on.net/pages.php?page=ts) if you require a private clan channel, password protected for your members).

We'll have a more detailed tutorial in the next issue, with step-by-step instructions on how to use TeamSpeak, as well as exploring some other VoIP options that exist for demanding gamers.



### 5. ENTER THE TOURNAMENT

You've got a clan of able-bodied virtual warriors, ready to turn your opposition into a fine pink mist. Your forums are full of advanced tactics and strategies, indicating exactly what each team member should do when the brown stuff hits the spinny thing. Every trooper has TeamSpeak working perfectly, allowing for timely, clear communication when the situation demands it.

But what now? Enter a public server and your well-trained troops will steamroll through the opposition with ease. Where's the challenge in that? It's time to take your gaming to the next level — and enter a tournament.

Tournaments can take on any number of forms, with most favouring the ladder style popular at footy and netball clubs. Like these sports, your team will need to register to participate and take part in weekly matches to compete.

To help you sample your first tournament, APC magazine has paired with [games.on.net](http://games.on.net) and ASUS to host the inaugural Shock and Awe online gaming tournament.

Head to [games.on.net/shockandawe](http://games.on.net/shockandawe) by June 27 to register.

#### MORE TUTORIALS

In next month's tutorial we'll explain what hardware is ideal for playing in online gaming tournaments, how to use TeamSpeak, and give you tips on how to excel on the battlefield.





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## MINDKITS ARDUINO TANK

Mindkits is a new NZ robotics manufacturer that is striving to fill a gap in the local robotic/physical computing market. Their latest release, the Arduino Tank Kit, offers anyone with a minimum of tech knowledge the chance to own their own robot for less than \$200. Filled with multiple corner sensors, an IR seeing eye with servo control, multiple motors with positioning feedback, this not-so-little device senses and reacts to movement and objects in the world around it. All you need do is install an Arduino chip and you're off. There's also plenty of space onboard for users to add their own gadgets and home-made improvements. Hmm, weapons? **CZ**

CONTACT Mindkits  
ONLINE [www.mindkits.co.nz](http://www.mindkits.co.nz)  
PRICE NZ\$189

## STM GLOVE LAPTOP SLEEVES

Australian-based STM Bags has re-released their popular range of Glove Laptop Sleeves in five new colours. What was originally only available in black, black or black, now comes in a choice of burgundy (deep red), magenta (pink), teal (blue-green), orange and of course... black. The gloves are available in four sizes: extra small (10.2in screens), small (13in screens), medium (15in screens) and large (17in screens). Made from Neoprene, the Glove protects your notebook from bumps, dust and scratches. A 'top-load' design with chunky scratch-proof zippers allows for easy, one-handed access to your much-loved notebook. **CZ**

CONTACT STM  
ONLINE [www.stmbags.com](http://www.stmbags.com)  
PRICE \$49

## EDIFIER ESiena IF360

Equipped with an iPod and iPhone dock, video out, CD, CD MP3, CD WMA, SD and USB card readers, FM radio and digital clock with alarm function, the Edifier Esiena IF360 is an all-rounder when it comes to home entertainment. With the video out port, watching video files from your iPod on your TV is a simple process. If you're mostly into music, the IF360 gives out a decent range of sound through its gloss black 'nautilus' speaker enclosure. Bass sounds are enhanced via the body design to improve the overall audio quality. In keeping with your iPhone's navigation, touch-sensitive controls (and a remote) make using the IF360 simple and intuitive. **CZ**

CONTACT Edifier  
ONLINE [www.edifier-international.com](http://www.edifier-international.com)  
PRICE \$599

## LEGO LANTERN AND TORCH

Every kid for the last fifty years has grown up knowing the Lego brand. Their little yellow men have become cultural icons that are still cool today. Looking exactly like oversized Lego pieces, a new range of Lego lights have been released in three different sizes. The smallest is a keychain light (not shown), which is available for \$9.95. In the mid-sized range there is a cool posable torch with a light in each foot (pictured) for \$19.95, and best of all is a Lego man lantern that stands 22 centimetres tall and would look great in any kid's room or on any geek's desk. The body itself lights up thanks to tiny LED bulbs. AA batteries are required for each of these products. **CZ**

CONTACT FunTastic  
ONLINE [www.funtastic.com.au](http://www.funtastic.com.au)  
PRICE Torch \$19.95, Lantern \$24.95





## MICROSOFT ARC KEYBOARD

Designed to match the Arc Mouse by Microsoft, the aptly named Arc Keyboard is a sexy-looking piece of kit that looks as good as it performs... providing you don't mind undersized keyboards. Coming in at just over 31cm wide and 15cm high, the Arc is only slightly smaller than average.

The most obvious change is the replacement of the four directional arrow keys with a single four-way button that takes a bit of getting used to. The curved shape is comfortable to use and looks great on the desk. It also sits comfortably well on the lap when being used wirelessly with a notebook. This is one for the style gurus amongst us. **CZ**

CONTACT Microsoft  
ONLINE [www.microsoft.com](http://www.microsoft.com)  
PRICE \$79.95

## WoW WIRELESS HEADSET

The Sound Blaster World of Warcraft Wireless Headset is a branded device that would appeal to most WoW fans. Firstly, THX TruStudio PC technology delivers great quality audio that is very immersive. Secondly, the uniquely designed body, while paying homage to the most addictive game of all time, is thankfully very comfortable to wear during even the longest WoW sessions. Runic symbols and interchangeable headset lenses featuring Horde and Alliance artwork allow users to choose and display their allegiance in multiple colours. If you want to save some cash, a wired version is also available for \$179.95. **CZ**

CONTACT Creative  
ONLINE [www.soundblaster.com](http://www.soundblaster.com)  
PRICE \$219.95

## NINTENDO DSi XL

Nintendo keeps going back and re-inventing the wheel with myriad versions of the humble DS console (well, 4 anyway). The DSi XL is more of a super-sizing exercise than a re-invention. With the same controls, camera and functionality of the DSi, the XL benefits from simply being larger. Hence the name. The outer casing does look a little more sophisticated with a new gloss finish while the screens are easier to see with the size increased up to 4.2in from 3.25in. This may not sound like much but it does make a hell of a difference. Viewing angles are improved and games look better on these screens. A new super-sized stylus is another plus. **CZ**

CONTACT Nintendo  
ONLINE [www.nintendo.com](http://www.nintendo.com)  
PRICE \$299.95

## HALO HEADPHONES

Headphones in a headband, how eighties. Designed for comfort, these elasticated beauties are made of a lightweight fabric called Supplex that is very soft to the touch. Hidden in the folds of the fabric are a pair of disc-shaped speakers that are made to sit against the ear rather than in them, making for more comfortable listening than in-ear buds while ensuring a snug fit during physical activity. Cables still exist though, with a one metre cord running from the back of the headband to your MP3 player. If you don't mind the Divia Newton-John look then these are a very comfortable and cheap alternative to bulky headsets or intrusive in-ear buds. **CZ**

CONTACT N.A.S.T. International  
ONLINE [www.haloheadphones.com](http://www.haloheadphones.com)  
PRICE \$15

## Inprint

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## THE INTERNET IS A PLAYGROUND

www.fountainpress.com

David Thorne has quickly established himself as the world's leading internet troublemaker. Ever since his emailed efforts to settle an overdue bill with a line drawing of a spider achieved massive worldwide exposure, millions of people have followed Thorne's hilarious exchanges with many unwitting victims reported via the mainstream media.



\$53

## UBUNTU: POWERFUL HACKS AND CUSTOMISATIONS

www.wiley.com

This book provides you with practical Linux hacks and tips that are not readily available online, in FAQ files, or any other Ubuntu book on the market. Bridging the gap between introductory information and overly technical coverage, this book presents complex hacks and ways to extend them. You'll feast on numerous tips, hints and little-known secrets for getting the most out of your Ubuntu system.

## PlayStation Move

Wii-style controls on sale for the PS3 this year

Sony Computer Entertainment (SCE) has recently announced an on-sale date for the PlayStation Move motion controller. Well, a rough date anyway. It's expected to hit the shelves in spring of this year, so you can expect to be playing PS3 games with Wii-like arm-flailing moves sometime around October.

Sony's take on the motion-based control system is shaping up to be the most sensitive and advanced so far. Pair that with HD graphics that are notches above what the Wii can produce and you end up with a viable platform that could knock Nintendo off its sales perch.

Similar to the Wii's nunchuck, the PlayStation Move sub-controller will also go on sale as a separate device for navigation of in-game characters and objects.

Inside the controllers are a three-axis gyroscope, a three-axis accelerometer and a terrestrial magnetic field sensor, as well as a colour-changing sphere that is tracked by the PlayStation Eye camera.

The PlayStation Move platform, including the motion controller, sub-controller and PlayStation Eye camera 1, together with a decent lineup of software titles, should offer PS3 users a new and fun way of playing their games.

Christopher Zammit



CONTACT Sony  
ONLINE [www.sony.com.au](http://www.sony.com.au)  
PRICE TBA

## BLU-RAY PICKS OF THE MONTH

## SHERLOCK HOLMES



CONTACT Roadshow Pictures  
ONLINE [www.village.com.au](http://www.village.com.au)  
PRICE \$29.97

Set in nineteenth-century London, Sherlock Holmes is a film that will not appeal to all viewers. This is a character-driven story that relies on the charm and interplay of the two lead characters as they set about sorting out their own differences while attempting to solve a series of murders. Robert Downey Jr. is excellent (although unconventional) as Holmes, with Jude Law making a surprisingly good Watson. The story can be a bit slow but the dialogue and Downey Jr.'s charm make the film more than watchable. Visually it is a stunning film featuring amazingly realistic scenes of Victorian London. **CZ**

## UP IN THE AIR



CONTACT Paramount Pictures  
ONLINE [www.paramount.com](http://www.paramount.com)  
PRICE \$29.97

George is getting a bit grey but still has the appeal with the ladies, even if he is about to fire you. In this major Oscar contender that was up for best picture as well as winning numerous other awards, *Up in the Air* is a melancholic tale of life on the road and the effects of the global recession. Ryan Bingham (Clooney) enjoys his job of travelling across America firing people. When he's forced to travel with his new boss in order to save his own job, Ryan begins to see things from a new point of view. This film says a lot about our society and how we undervalue each other. This is a must-see film that defines our era. **CZ**

## THE IMAGINARIUM OF DR PARNASSUS



CONTACT Sony Pictures  
ONLINE [www.sony.com.au](http://www.sony.com.au)  
PRICE \$31.95

Heath Ledger's final film is a fantasy epic with a dark underbelly hiding behind all the magic and colour. Like Holmes (above), *Parnassus* is set in London, where a mysterious sideshow troupe promises audiences a journey to an imaginary world commanded by the mind of Doctor Parnassus. Filled with great visuals featuring imaginative worlds reminiscent of Director Terry Gilliam's earlier works (especially *The Adventures of Baron Munchausen*), the film plausibly gets around the major problem of Ledger's death during filming by casting Johnny Depp, Jude Law and Colin Farrell in his place. **CZ**

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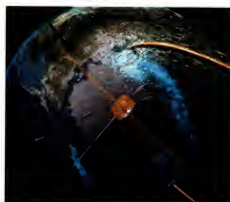
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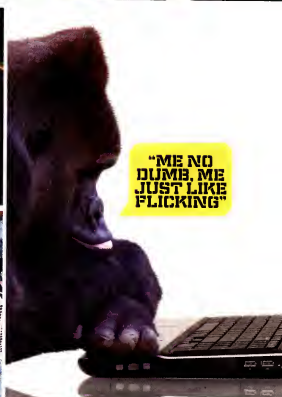


## HOW LOW CAN YOU GO?

Ever wondered if you're sitting on a gold mine? Now you can find out, just as long as it's not further than 5km down!

## Undermining Google Earth?

Google Earth, eat your heart out! Literally pulling the rug from underneath Google's feet (well, okay, not exactly literally), the Pentagon has announced its "Transparent Earth" project, which aims to "determine the physical, chemical and dynamic properties of the earth down to 5km depth, including natural or man-made structures at militarily relevant spatial scales." And, as Wired.com reports, private company (and dirt pioneer) Geospatial Corporation is already using its "Smart Probe" technology to measure and map the ground beneath our feet and is in talks with both the Pentagon and homeland security firms. It's like Street View for worms.



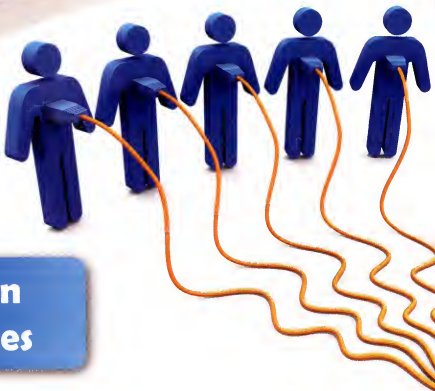
"ME NO DUMB, ME JUST LIKE FLICKING"

## How do you spell "web research" again?

In claims set to rock the internet landscape — that is, if we're smart enough to do anything about it — TechRadar.com has reported on the findings of a number of independent studies that point to the negative impact internet usage has on users, specifically with regard to the way it makes us think and feel about what we read online. It seems that the link-happy nature of the net encourages users to hop around quickly rather than authoritatively research or read in any depth — indeed, a British Library study concluded: "The speed of young people's internet searching indicates that little time is spent in evaluating information, either for relevance, accuracy or authority." The inevitable risk? "[P]eople exhibit a strong tendency towards shallow, horizontal, 'flicking' behaviour in digital libraries. Society is dumbing down." **ETTC**

## Deal of the century!

Keen-eyed deal assessor and APC reader Gordon Woolf from Hastings, Victoria, sent us in this snippet from an Officeworks catalogue: "Officeworks seem to have decided that longer usage periods are needed for wireless broadband from Vodafone. But 365 months? That's more than 30 years for 12GB and a bonus SMS every 7 months... or you can go for the Optus offering — 186 months or 15 years to use 5GB." If only every provider offered such long-lasting expiry periods, and yet — somehow we don't think we'd last 30 years on 12GB. Can you imagine how content-heavy the net will be in 2040? Sheesh. Thanks for writing in, Gordon!

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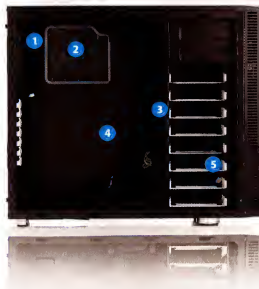
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PT999L \$9.00

## Sharp Thermal Fax Rolls

| Model   | Genuine | TONNY   |
|---------|---------|---------|
| FO-3CR  | \$27.00 | \$16.00 |
| FO-6CR  | \$24.00 | \$18.00 |
| FO-9CR  | \$27.00 | \$18.00 |
| FO-15CR | \$44.00 | \$21.00 |

## Panasonic Thermal Film

| Model    | Genuine | TONNY          |
|----------|---------|----------------|
| KX-FA54E | \$43.00 | \$18 Twin Pack |
| KX-FA55A | \$43.00 | \$19 Twin Pack |
| KX-FA134 | \$82.00 | \$35 Twin Pack |
| KX-FA136 | \$63.00 | \$26 Twin Pack |

## Lexmark Toner Cartridges

| Model        | Genuine  | TONNY   |
|--------------|----------|---------|
| Opra E/E+    | \$142.00 | \$59.00 |
| E120 prebate | \$115.00 | \$55.00 |
| E210         | \$162.00 | \$49.00 |
| X215         | \$119.00 | \$49.00 |
| E220 prebate | \$135.00 | \$79.00 |

| Model            | Genuine  | TONNY   |
|------------------|----------|---------|
| E230/232/330/332 | \$129.00 | \$55.00 |
| E310/312 (3k)    | \$185.00 | \$73.00 |
| E320/322 (3k)    | \$162.00 | \$82.00 |
| E321/323 (3k)    | \$162.00 | \$85.00 |
| X342n (2.5k)     | \$145.00 | \$69.00 |

## Epson Toner Cartridges

| Model              | Genuine  | TONNY    |
|--------------------|----------|----------|
| EPL-5700/5800      | \$196.00 | \$49.00  |
| EPL-5900/6100      | \$213.00 | \$49.00  |
| EPL-6200           | \$163.00 | \$49.00  |
| AL-C900/1900BK     | \$102.00 | \$65.00  |
| AL-C900/1900CM/Y   | \$122.00 | \$65.00  |
| AL-CX11N/C1100BK   | \$107.00 | \$39.00  |
| AL-CX11N/C1100CM/Y | \$164.00 | \$39.00  |
| AL-C1000/2000BK    | \$124.00 | \$99.00  |
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**Epson Ink Cartridges**

| Model                     | Genuine | TONNY  |
|---------------------------|---------|--------|
| T028                      | \$43.60 | \$4.40 |
| T029                      | \$39.10 | \$5.90 |
| T038                      | \$20.00 | \$2.00 |
| T039                      | \$28.40 | \$5.60 |
| T0461                     | \$22.00 | \$4.50 |
| T0472/3/4                 | \$14.90 | \$4.50 |
| T0491/2/3                 | \$21.00 | \$4.50 |
| T0494/5/6                 | \$21.00 | \$4.50 |
| T0621                     | \$22.00 | \$5.20 |
| T0631                     | \$16.00 | \$5.20 |
| T0832/3/4                 | \$15.20 | \$5.20 |
| 73N BK (T0731)            | \$17.00 | \$7.40 |
| 73N C/M/Y (T0732/3/4)     | \$17.00 | \$7.40 |
| 81N BK (T0811)            | \$27.00 | \$8.40 |
| 81N C/M/Y (T0812/3/4/5/6) | \$27.00 | \$8.40 |
| S020089 / T052            | \$35.10 | \$4.80 |
| S020093 / T050            | \$29.00 | \$4.80 |
| S020187 / T050            | \$32.00 | \$4.80 |
| S020189 / T051            | \$28.00 | \$4.80 |
| S020191 / T052            | \$34.00 | \$4.80 |

**Canon Ink Cartridges**

| Model                   | Genuine | TONNY   |
|-------------------------|---------|---------|
| BX-3                    | \$47.00 | \$23.10 |
| BC-05                   | \$59.60 | \$26.70 |
| BC-40                   | \$62.00 | \$22.90 |
| PG-40                   | \$34.00 | \$26.00 |
| CL-41                   | \$35.00 | \$26.50 |
| BCI-3eBK                | \$22.70 | \$6.40  |
| BCI-3eC/M/Y             | \$20.40 | \$5.70  |
| BCI-6BK                 | \$24.10 | \$5.70  |
| BCI-6C/M/Y              | \$24.10 | \$5.70  |
| BCI-6C/PM               | \$24.10 | \$5.70  |
| BCI-6GR                 | \$24.10 | \$5.70  |
| CLI-BBK/box/m with chip | \$22.50 | \$8.90  |
| CLI-BK/M/Y with chip    | \$22.50 | \$8.90  |
| PGI-5BK with chip       | \$22.50 | \$8.90  |
| CLI-BBK no chip         | -       | \$5.70  |
| CLI-BK/M/Y no chip      | -       | \$5.70  |
| CLI-6C/PM no chip       | -       | \$5.70  |
| PGI-5BK no chip         | -       | \$5.70  |
| BCI-15BK                | \$24.90 | \$6.10  |
| BCI-16C                 | \$40.70 | \$6.30  |
| PG-510                  | \$24.10 | -       |
| CL-511                  | \$27.40 | -       |
| PGI520BK                | \$19.30 | \$8.90  |
| CLI521BK/C/M/Y/GY       | \$19.30 | \$8.90  |
| BCI-24BK                | \$15.30 | \$5.80  |
| BCI-24C                 | \$31.00 | \$6.90  |

**Lexmark Ink Cartridges**

| Model         | Genuine | TONNY   |
|---------------|---------|---------|
| 18C0781A (#1) | \$36.90 | \$24.60 |
| 10N0010 (#16) | \$49.30 | \$18.40 |
| 15M0120 (#20) | \$63.60 | \$24.00 |
| 10N0026 (#26) | \$53.00 | \$23.00 |
| 18C0032 (#32) | \$36.90 | \$21.30 |
| 18C0033 (#33) | \$39.80 | \$23.10 |
| 18C0034 (#34) | \$41.60 | \$25.00 |
| 18C0035 (#35) | \$49.30 | \$27.00 |
| 12A1970 (#70) | \$55.90 | \$21.00 |
| 18L0032 (#82) | \$50.20 | \$26.10 |
| 18L0042 (#83) | \$62.60 | \$23.90 |

**Brother Ink Cartridges**

| Model      | Genuine | TONNY  |
|------------|---------|--------|
| LC-37BK    | \$25.20 | \$5.00 |
| LC-37C/M/Y | \$16.80 | \$5.00 |
| LC-38BK    | \$24.50 | \$5.00 |
| LC-38C/M/Y | \$15.90 | \$5.00 |
| LC-47BK    | \$34.60 | \$5.00 |
| LC-47C/M/Y | \$20.80 | \$5.00 |
| LC-57BK    | \$34.50 | \$5.00 |
| LC-57C/M/Y | \$20.80 | \$5.00 |

**HP Ink Cartridges**

| Model                          | Genuine | TONNY   |
|--------------------------------|---------|---------|
| C8721WA (#02BK)                | \$28.20 | \$11.00 |
| C8711/2/3/4/WA (#02C/M/Y/LCLM) | \$16.60 | \$8.20  |
| C8615DA (#15)                  | \$42.40 | \$14.10 |
| C4936A (#18BK)                 | \$30.00 | \$16.00 |
| C3967/8/9A (#18C/M/Y)          | \$23.50 | \$12.00 |
| C9351AA (#21)                  | \$24.00 | \$16.00 |
| C9352AA (#22)                  | \$27.30 | \$21.00 |
| C8727AA (#27)                  | \$28.90 | \$14.10 |
| C8728AA (#28)                  | \$33.00 | \$22.00 |
| C5164AA (#45)                  | \$44.70 | \$16.00 |
| C8656AA (#50)                  | \$30.60 | \$15.20 |
| C8657AA (#57)                  | \$49.90 | \$23.00 |
| C8658AA (#58)                  | \$38.80 | \$23.00 |
| CC641WA (#60XL) BK             | \$45.00 | \$27.00 |
| CC644WA (#60XL) Color          | \$51.00 | \$29.00 |
| CB336WA (#74XL)                | \$44.80 | \$26.00 |
| CB338WA (#75XL)                | \$49.80 | \$27.00 |
| C8578DA (#78)                  | \$48.80 | \$19.90 |
| C9396A (#88 BK)                | \$49.60 | \$18.00 |
| C9391/2/3A (#88C/M/Y)          | \$36.40 | \$14.70 |
| C9362WA (#92)                  | \$32.20 | \$14.70 |
| C8765WA (#94)                  | \$30.00 | \$16.00 |
| C8766WA (#95)                  | \$31.30 | \$16.90 |
| C8767WA (#96)                  | \$36.40 | \$16.90 |
| C9363WA (#97)                  | \$44.80 | \$15.80 |
| C9364WA (#98)                  | \$50.20 | \$15.80 |
| C9369WA (#99)                  | \$28.40 | \$16.90 |
|                                | \$37.80 | \$25.00 |

**HP Toner Cartridges**

| Model  | Genuine  | TONNY    |
|--------|----------|----------|
| Q2610A | \$183.00 | \$55.00  |
| Q6511X | \$316.00 | \$69.00  |
| Q2612A | \$106.00 | \$45.00  |
| Q2613A | \$109.00 | \$45.00  |
| C7115A | \$95.00  | \$45.00  |
| Q7516A | \$276.00 | \$59.00  |
| Q4127X | \$194.00 | \$59.00  |
| CB435A | \$95.00  | \$49.00  |
| CB436A | \$107.00 | \$49.00  |
| Q1338A | \$235.00 | \$85.00  |
| Q5942A | \$226.00 | \$59.00  |
| Q5943A | \$343.00 | \$105.00 |
| Q5948A | \$109.00 | \$49.00  |
| Q7551X | \$201.00 | \$55.00  |
| Q7553A | \$330.00 | \$76.00  |
| Q7553A | \$123.00 | \$49.00  |
| Q7553X | \$227.00 | \$59.00  |
| C8061X | \$194.00 | \$59.00  |
| C4002A | \$90.00  | \$45.00  |
| C4096A | \$153.00 | \$59.00  |

**HP Color Toner**

| Model         | Genuine  | TONNY   |
|---------------|----------|---------|
| CB540A        | \$109.00 | \$75.00 |
| CB541/2/3A    | \$99.00  | \$75.00 |
| Q6000A        | \$116.00 | \$78.00 |
| Q6001/2/3A    | \$126.00 | \$78.00 |
| Q396DA/C9700A | \$126.00 | \$65.00 |
| Q3961/2/3A    | \$151.00 | \$65.00 |

**Genuine TONNY**

| Model                          | Genuine | TONNY   |
|--------------------------------|---------|---------|
| C8721WA (#02BK)                | \$28.20 | \$11.00 |
| C8711/2/3/4/WA (#02C/M/Y/LCLM) | \$16.60 | \$8.20  |
| C8615DA (#15)                  | \$42.40 | \$14.10 |
| C4936A (#18BK)                 | \$30.00 | \$16.00 |
| C3967/8/9A (#18C/M/Y)          | \$23.50 | \$12.00 |
| C9351AA (#21)                  | \$24.00 | \$16.00 |
| C9352AA (#22)                  | \$27.30 | \$21.00 |
| C8727AA (#27)                  | \$28.90 | \$14.10 |
| C8728AA (#28)                  | \$33.00 | \$22.00 |
| C5164AA (#45)                  | \$44.70 | \$16.00 |
| C8656AA (#50)                  | \$30.60 | \$15.20 |
| C8657AA (#57)                  | \$49.90 | \$23.00 |
| C8658AA (#58)                  | \$38.80 | \$23.00 |
| CC641WA (#60XL) BK             | \$45.00 | \$27.00 |
| CC644WA (#60XL) Color          | \$51.00 | \$29.00 |
| CB336WA (#74XL)                | \$44.80 | \$26.00 |
| CB338WA (#75XL)                | \$49.80 | \$27.00 |
| C8578DA (#78)                  | \$48.80 | \$19.90 |
| C9396A (#88 BK)                | \$49.60 | \$18.00 |
| C9391/2/3A (#88C/M/Y)          | \$36.40 | \$14.70 |
| C9362WA (#92)                  | \$32.20 | \$14.70 |
| C8765WA (#94)                  | \$30.00 | \$16.00 |
| C8766WA (#95)                  | \$31.30 | \$16.90 |
| C8767WA (#96)                  | \$36.40 | \$16.90 |
| C9363WA (#97)                  | \$44.80 | \$15.80 |
| C9364WA (#98)                  | \$50.20 | \$15.80 |
| C9369WA (#99)                  | \$28.40 | \$16.90 |
|                                | \$37.80 | \$25.00 |



**Brother Toner Cartridges**

| Model      | Genuine  | TONNY    |
|------------|----------|----------|
| TN-2025    | \$8.00   | \$49.00  |
| DR-2025    | \$156.00 | \$62.00  |
| TN-2150    | \$8.00   | \$49.00  |
| DR-2125    | \$155.00 | \$69.00  |
| TN-3060    | \$123.00 | \$49.00  |
| TN-3185    | \$128.00 | \$49.00  |
| TN-3290    | \$159.00 | \$49.00  |
| DR-3215    | \$215.00 | \$69.00  |
| TN-6600    | \$117.00 | \$49.00  |
| TN-7600    | \$122.00 | \$49.00  |
| TN-8000    | \$47.00  | \$16.00  |
| TN-04BK    | \$257.00 | \$89.00  |
| TN-04C/C/Y | \$257.00 | \$89.00  |
| TN-12BK    | \$139.00 | \$72.00  |
| TN-12C/M/Y | \$281.00 | \$105.00 |
| TN-155 BK  | \$139.00 | \$89.00  |
| TN-15C/M/Y | \$196.00 | \$99.00  |

**Samsung Laser Toner**

| Model        | Genuine  | TONNY   |
|--------------|----------|---------|
| SCX-4100D3   | \$123.00 | \$49.00 |
| SCX-4210D3   | \$123.00 | \$49.00 |
| SCX-D4200A   | \$123.00 | \$49.00 |
| SCX-4521D3   | \$126.00 | \$49.00 |
| SCX-D4725A   | \$123.00 | \$64.00 |
| SCX-5312D6   | \$96.00  | \$70.00 |
| SF-5100D3    | \$123.00 | \$49.00 |
| ML-1210D3    | \$123.00 | \$49.00 |
| ML-1612D2    | \$114.00 | \$49.00 |
| MLT-D108S    | \$95.00  | -       |
| MLT-D109L    | \$145.00 | -       |
| ML-1710D3    | \$123.00 | \$49.00 |
| ML-2010D3    | \$113.00 | \$49.00 |
| ML-2150D8    | \$219.00 | \$82.00 |
| ML-2250D5    | \$144.00 | \$59.00 |
| ML-D3050S 8k | \$288.00 | \$86.00 |

**Canon Toner Cartridges**

| Model                      | Genuine  | TONNY   |
|----------------------------|----------|---------|
| CART 303(Q2612A)           | \$89.00  | \$45.00 |
| CART 308(O9594A)           | \$89.00  | \$45.00 |
| CART 310(I08511X)          | \$264.00 | \$79.00 |
| CART 312(CB435A)           | \$81.00  | \$49.00 |
| CART 313(CB436A)           | \$86.00  | \$49.00 |
| EP-22(C4092A)              | \$75.00  | \$45.00 |
| EP-26                      | \$99.00  | \$45.00 |
| CART307BK(O6000A)          | \$99.00  | \$78.00 |
| CART307C/M/Y(O6001/2/3A)   | \$105.00 | \$77.00 |
| CART 301 BK (EP87 BK)      | \$125.00 | \$78.00 |
| CART 301 C/M/Y (EP87C/M/Y) | \$140.00 | \$77.00 |
| CART311BK                  | \$155.00 | -       |
| CART313 C/M/Y              | \$199.00 | -       |
| FX-3                       | \$99.00  | \$45.00 |
| FX-7                       | \$139.00 | \$65.00 |
| FX-9                       | \$120.00 | \$49.00 |
| CARTN                      | \$231.00 | \$59.00 |
| CARTU                      | \$105.00 | \$45.00 |
| CARTW                      | \$149.00 | \$63.00 |
| E-31                       | \$195.00 | \$55.00 |

**Konica Minolta Color Laser Toner**

| Model                                 | Genuine  | TONNY   |
|---------------------------------------|----------|---------|
| CMS Magicolor 2300/2350 BK            | \$121.00 | \$69.00 |
| CMS Magicolor 2300/2350 C/M/Y         | \$161.00 | \$69.00 |
| CMS Magicolor 24C0W/243C0L/2450 BK    | \$119.00 | \$85.00 |
| CMS Magicolor 24C0W/243C0L/2450 C/M/Y | \$164.00 | \$85.00 |

**Kyocera Toner Cartridges**

| Model       | Genuine  | TONNY   |
|-------------|----------|---------|
| TK-16H      | \$73.00  | \$61.00 |
| TK-17       | \$103.00 | \$35.00 |
| TK-18       | \$123.00 | \$38.00 |
| TK-310      | \$130.00 | \$59.00 |
| TK-510K     | \$98.00  | -       |
| TK-510C/M/Y | \$172.00 | -       |

**Panasonic Toner Cartridges**

| Model                           | Genuine  | TONNY   |
|---------------------------------|----------|---------|
| UG-3313                         | \$242.00 | \$73.00 |
| UG-5545                         | \$242.00 | -       |
| UG-PPDR Toner for KXP71/100/110 | \$136.00 | \$68.00 |



# SCORPION TECHNOLOGY COMPUTERS



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Intel Core i7 930 (2.80GHz)  
**GIGABYTE** X58 Chipset  
 Corsair 6GB DDR3 (1333MHz)  
 2 x 1TB HDD, 850W PSU  
 Sapphire HD 5850, 1GB, Blu-Ray  
 Fractal Designs Black Pearl Case

**\$2199**

+ \$44 Blu-Ray Burner  
 + \$114 HD 5870 1GB  
 + \$340 Core i7 960



## VENOM SILVER



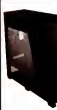
Intel Core i7 930 (2.80GHz)  
**GIGABYTE** X58 Chipset  
 3GB Corsair DDR3 (1333MHz)  
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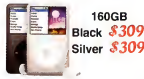


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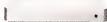
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| LC-37BK2PK    | 41.43 |
| LC-37CL3PK    | 14.04 |
| LC-37CL3PK    | 37.50 |
| LC-37BK       | 22.14 |
| LC-38BK2PK    | 39.52 |
| LC-38C.M.Y    | 13.13 |
| LC-38CL3PK    | 34.62 |
| LC-47B        | 33.46 |
| LC-47BK2PK    | 57.41 |
| LC-47C.M.Y    | 18.39 |
| LC-47CL3PK    | 47.37 |
| LC-47BK HY    | 47.83 |
| LC-57BK       | 33.46 |
| LC-57BK2PK    | 57.41 |
| LC-57C.M.Y    | 18.39 |
| LC-57CL3PK    | 47.37 |
| LC-57VPK      | 80.54 |
| LC-67BK       | 30.31 |
| LC-67BK2PK    | 53.02 |
| LC-67C.M.Y    | 15.13 |
| LC-67CL3PK    | 40.56 |
| LC-67HY-BK    | 43.44 |
| LC-67HY-BK2PK | 86.25 |
| LC-67HY-C.M.Y | 20.26 |
| LC-67HY-CL3PK | 70.45 |
| LC-800BK      | 33.46 |
| LC-800C.M.Y   | 18.39 |

### BROTHER TONER Price \$

|          |        |
|----------|--------|
| TN200    | 43.56  |
| TN-2025  | 79.73  |
| TN-2130  | 54.75  |
| TN-2150  | 82.04  |
| TN-3030  | 82.97  |
| TN-3060  | 114.87 |
| TN-3145  | 11.45  |
| TN-3185  | 119.66 |
| TN-3250  | 88.73  |
| TN-3290  | 153.30 |
| TN-4100  | 135.64 |
| TN-6000  | 194.66 |
| TN-6300  | 77.72  |
| TN-6600  | 108.99 |
| TN-7300  | 84.41  |
| TN-7600  | 113.60 |
| TN-8000  | 43.56  |
| 9229BA   | 119.43 |
| TN-04B   | 239.32 |
| TN-04C   | 239.32 |
| TN-04M   | 239.32 |
| TN-04Y   | 239.32 |
| TN-150BK | 82.04  |
| TN-150C  | 82.52  |
| TN-150M  | 96.52  |
| TN-150Y  | 96.52  |
| TN-158BK | 137.37 |
| TN-155C  | 183.87 |
| TN-155M  | 183.87 |
| TN-155Y  | 183.87 |

### CANON INK Price \$

|             |       |
|-------------|-------|
| PG40        | 29.22 |
| PG40-TWIN   | 49.85 |
| CL41        | 31.94 |
| CL41-Twin   | 53.48 |
| PG40CL41CP  | 52.50 |
| PG40CL41VP  | 72.59 |
| PG50        | 36.28 |
| CL51        | 34.55 |
| CL51-Twin   | 54.54 |
| PG58BK-TWIN | 36.75 |
| PG58BK      | 14.10 |
| BC16C.M.Y   | 14.10 |
| PG71BK      | 22.02 |
| CL18BK      | 19.66 |
| CL18C.M.Y   | 19.66 |
| CL18B.Y     | 19.66 |
| CL18VPK     | 75.41 |
| PG59PK      | 22.51 |

### CANON INK (cont.) Price \$

|               |       |
|---------------|-------|
| PG96C.M.Y     | 22.51 |
| PG96CLEAR     | 19.90 |
| BC124BK-TWIN  | 19.30 |
| BC124C-TWIN   | 40.16 |
| KR-361P       | 17.91 |
| PG510         | 20.75 |
| CL511         | 34.96 |
| PG510CL511CP  | 41.25 |
| PG512         | 30.37 |
| CL513         | 32.00 |
| PG5120BK      | 15.97 |
| PG5120BK-TWIN | 30.79 |
| CL5121BK      | 15.97 |
| CL5121GY      | 15.97 |
| CL5121C.M.Y   | 15.97 |

### CANON FAX CARTRIDGES Price \$

|      |        |
|------|--------|
| FX3  | 75.00  |
| FX7  | 128.08 |
| FX9  | 104.83 |
| FX12 | 156.93 |

### CANON TONER Price \$

|              |        |
|--------------|--------|
| CART303      | 77.54  |
| CART308B     | 148.05 |
| CART310I     | 241.97 |
| CART312      | 69.75  |
| EP-22CART    | 69.75  |
| CART307BK    | 85.39  |
| CART307C.M.Y | 93.24  |
| CART316BK    | 76.91  |
| CART316C.M.Y | 68.37  |
| CART301BK    | 116.72 |
| CART301C.M.Y | 132.35 |
| CART311BK    | 140.20 |
| CART311C.M.Y | 179.37 |
| CART317BK    | 171.53 |
| CART317C.M.Y | 171.53 |

### CANON COPIER TONER Price \$

|            |        |
|------------|--------|
| CARTN      | 218.49 |
| CARTU      | 93.24  |
| E31CART    | 167.32 |
| TC-41B     | 149.43 |
| TC-41C.M.Y | 195.41 |
| TC-23B     | 89.31  |
| TC-23C.M.Y | 175.39 |
| TC-22B     | 138.70 |
| TC-22C.M.Y | 195.30 |
| TC-35B     | 168.30 |
| TC-35C.M.Y | 184.62 |
| TC-31B     | 153.76 |
| TC-31C.M.Y | 271.17 |
| TC-30B     | 158.08 |
| TC-30C.M.Y | 294.53 |
| TC-24B     | 132.70 |
| TC-24C.M.Y | 197.89 |

### EPSON INK Price \$

|                        |       |
|------------------------|-------|
| T0472.3.4              | 12.89 |
| T0491.2,3,4,5,6        | 17.67 |
| C13T054090             | 9.23  |
| T0541.2,3,4,7,8,9      | 17.67 |
| T5591.2,3,4,5,6        | 17.67 |
| T0561.2,3,4            | 15.31 |
| T0591.2,3,4,5,6,7,8,9  | 18.45 |
| T0631.2,3,4            | 13.67 |
| C13T062190             | 20.15 |
| 73.73BK (C.M.Y)        | 13.67 |
| 73M.73M                | 11.40 |
| 81.81M (B.C.M.Y)       | 21.66 |
| 82.82M (B.C.M.Y)       | 16.03 |
| T0870                  | 13.61 |
| T0871.2,3,4,5,7,8,9    | 18.65 |
| 91.91M (B.C.M.Y)       | 8.35  |
| T0961.2,3,4,5,6,7,8,9  | 18.45 |
| Epson i103 H.Y Black   | 27.41 |
| Epson i103 H.Y (C.M.Y) | 17.67 |

### HP INK Price \$

|                   |       |
|-------------------|-------|
| HP-02B -C8721WA   | 22.26 |
| HP-02 C.M.Y,JCIM  | 12.40 |
| HP02TwinPack -    | 36.17 |
| HP02 PhotoPack -  | 65.77 |
| CG849AA           | 36.23 |
| HP10 (C844AAA)    | 36.23 |
| HP11 Ink C.M.Y    | 28.01 |
| HP11 B.C.M.Y      | 34.79 |
| HP15 TwinPack -   | 53.08 |
| CG626AA           | 31.58 |
| HP21TXL -         | 34.73 |
| CG351CA           | 36.46 |
| HP222XL C.M.Y -   | 26.38 |
| CG952CA           | 38.66 |
| HP27/28 combo -   | 56.77 |
| CG628AA           | 53.08 |
| HP27 Twin Black - | 39.75 |
| CG621AA           | 35.63 |
| HP2B - CB728AA    | 39.64 |
| HP29 - 51629AA    | 35.54 |
| HP25 TwinPack -   | 39.41 |
| CG625AA           | 37.10 |
| HP56/57 Combo -   | 27.77 |
| CG629AA           | 17.79 |
| HP56 TwinPack -   | 23.78 |
| CG620AA           | 29.77 |
| HP95 - CB766WA    | 40.21 |
| CG622AA           | 42.06 |
| HP94/95 Combo -   | 60.29 |
| SA307AA           | 39.41 |
| HP96 TwinPack -   | 35.09 |
| CG623AA           | 35.21 |
| HP97 - C9363WA    | 19.36 |
| HP98 TwinPack -   | 34.00 |
| CG624AA           | 17.00 |
| HP564XL Black -   | 38.94 |
| CB311WA           | 29.46 |
| HP564XL Colours   |       |
| HP920XL Colours   |       |
| CD975AA           |       |
| HP920XL Colours   |       |
| HP940XL Black -   |       |
| CA906AA           |       |
| HP940XL Colours   |       |

### HP TONER Price \$

|        |        |
|--------|--------|
| Q2612A | 79.39  |
| C7115A | 69.81  |
| CL417X | 175.85 |

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### HP TONER (cont.) Price \$

|          |        |
|----------|--------|
| CB435A   | 68.95  |
| CB436A   | 79.27  |
| C13139A  | 282.30 |
| Q5942X   | 313.24 |
| Q5942X2D | 564.22 |
| CB543X   | 382.88 |
| Q5949X   | 148.22 |
| Q5949X2D | 267.30 |
| Q7551X   | 246.53 |
| Q7551X2  | 168.12 |
| CB061A   | 138.01 |
| CB061X   | 177.01 |
| CG364X   | 312.43 |
| CB540A   | 80.20  |
| CB541A   | 73.21  |
| CB542A   | 73.21  |
| CB543A   | 73.21  |
| Q3961A   | 113.20 |
| Q3962A   | 113.20 |
| Q3963A   | 113.20 |
| Q3964A   | 262.57 |
| Q6000A   | 86.20  |
| Q6001A   | 93.99  |
| Q6002A   | 93.99  |
| Q6003A   | 93.99  |
| Q6250A   | 145.45 |
| Q6250X   | 211.51 |
| CE251A   | 286.40 |
| CE252A   | 286.40 |
| CE253A   | 286.40 |
| Q6470A   | 150.01 |
| Q6471A   | 149.14 |
| Q6472A   | 149.14 |
| Q6473A   | 149.14 |
| Q2681A   | 193.16 |
| Q2682A   | 193.16 |
| Q7581A   | 193.16 |
| Q7582A   | 193.16 |
| Q7583A   | 193.16 |
| Q5950A   | 201.70 |
| Q5951A   | 286.22 |
| Q5952A   | 286.22 |
| Q5953A   | 286.22 |

### KYOCERA TONER Price \$

|               |        |
|---------------|--------|
| TK-134        | 119.66 |
| TK-310        | 23.81  |
| TK-344        | 140.43 |
| TK-520K.C.M.Y | 90.58  |
| TK-500K       | 182.03 |
| TK-500C.M.Y   | 90.58  |
| TK-510K       | 162.01 |
| TK-510C.M.Y   | 120.52 |
| TK-544K       | 157.05 |
| TK-544C.M.Y   | 128.78 |
| TK-554K       | 173.66 |
| TK-554C.M.Y   | 157.05 |
| TK-564K       | 198.64 |
| TK-564C.M.Y   | 248.49 |
| TK-574K       | 231.93 |
| TK-574C.M.Y   | 211.78 |
| TK-800C.M.Y   |        |

### KYOCERA TONER (cont.) Price \$

|             |        |
|-------------|--------|
| TK-B10K     | 173.66 |
| TK-B10C.M.Y | 286.74 |
| TK-B20K     | 117.99 |
| TK-B20C.M.Y | 112.16 |

### LEXMARK INK Price \$

|                        |       |
|------------------------|-------|
| #23 - 18C1523A         | 28.80 |
| #24 - 18C1524A         | 32.49 |
| #28 - 18C1428A         | 26.02 |
| #29 - 18C1429A         | 27.89 |
| #32 #33 TwinPack -     | 58.50 |
| TPAN209                |       |
| #34 #35 TwinPack -     | 70.04 |
| #36XL - 18C2170A       | 35.42 |
| #37XL - 18C2180A       | 42.52 |
| #42 - 18Y0142A         | 28.80 |
| #44XL - 18Y0144A       | 35.42 |
| #43XL #44XL TwinPack - | 70.04 |
| TPAN215                |       |
| #60 - 17G0060A         | 51.93 |
| #62 - 18L0032A         | 43.44 |
| #83 - 18L0042A         | 53.66 |

### LEXMARK TONER Price \$

|          |        |
|----------|--------|
| C500H2KG | 211.91 |
| C500H2CG | 184.51 |
| C500H2MG | 184.51 |
| C500H2YG | 184.51 |
| C5220KS  | 161.20 |
| C5220CS  | 182.43 |
| C5220MS  | 182.43 |
| C5220YS  | 182.43 |
| C5240H   | 243.59 |
| C5240CH  | 244.80 |
| C5240MH  | 244.80 |
| C5240YH  | 244.80 |
| X945X2KG | 227.26 |
| X945X2CG | 568.32 |
| X945X2MG | 568.32 |
| X945X2YG | 568.32 |

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|           |        |
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| MLT-D108S | 80.66  |
| MLT-P108A | 128.54 |
| ML-2010D3 | 101.95 |
| ML-D2850B | 174.01 |
| ML-3560D  | 233.41 |
| CLP-K300A | 80.60  |
| CLP-C300A | 69.75  |
| CLP-M300A | 69.75  |
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| CLT-K4095 | 64.16  |
| CLT-C4095 | 54.23  |
| CLT-M4095 | 54.23  |
| CLT-Y4095 | 54.23  |
| CLP-S108R | 268.57 |
| CLP-S108T | 204.99 |
| CLP-M660B | 125.78 |
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| CLP-M660B | 166.74 |
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**RADEONHD 5870**



**RADEONHD 5970**

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## TL-WN951N

### 300Mbps Wireless N PCI Adapter



- 1 3 Antennas in a 3T3R configuration for extra reliability
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The TL-WN951N 300Mbps Wireless N PCI Adapter complies with IEEE802.11n, 802.11g, 802.11b standards. This PCI Adapter adapts 3T3R MIMO, SST, CCA technologies, which deliver greater coverage and higher speed. It supports 64/128/152-bit WEP encryptions, as well as WPA/WPA2 and WPA-PSK/WPA2-PSK encryptions and the adapter's QSS (Quick Secure Setup) feature allows users to configure wireless security quickly and easily.

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### TL-WR1043ND

#### 300Mbps N Router with Gigabit Switch

4 Gigabit LAN Ports  
USB 2.0 Port for USB storage share  
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WEP, WPA/WPA2 encryption, "QSS" button



### TL-WR941ND

#### 3T3R 300Mbps N Router

4x10/100M LAN Ports  
3T3R MIMO™, 3x3dBi Detachable Antennas  
WEP, WPA/WPA2 encryption, "QSS" button



### TL-WR841ND

#### 300Mbps N Router

4x10/100M LAN Ports  
2T2R MIMO™, 2x3dBi Detachable Antennas  
WDS (wireless bridge)  
WEP, WPA/WPA2 encryption, "QSS" button



### TL-WR741ND/ TL-WR740N

#### 150Mbps Wireless Router

WDS (wireless bridge)  
SdBi Detachable Antenna  
WEP, WPA/WPA2 encryption, "QSS" button



### TL-WN721N

#### 150Mbps USB Adapter

Support SONY PSP X-LINK connection  
WEP and WPA/WPA2 encryption, "QSS" button



### TL-WN722N

#### 150Mbps USB Adapter

External 4dBi detachable antenna,  
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Microsoft Office  
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Tools to help small businesses  
work more efficiently



PRICE CHECKER

|              |              |
|--------------|--------------|
| <b>TOTAL</b> | <b>\$228</b> |
| <b>SAVE</b>  | <b>\$521</b> |

Harvey Norman \$298  
Dick Smith \$299

Adobe Creative Suite 5  
Design Standard  
For print-centric designers &  
print professionals

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- Adobe Illustrator CS5
- Adobe InDesign CS5
- Adobe Acrobat 9 Pro



|              |               |
|--------------|---------------|
| <b>TOTAL</b> | <b>\$1781</b> |
| <b>SAVE</b>  | <b>\$394</b>  |

WebCode: WCN - ROC5007  
WebCode: WNC - ROC5008

Samsung CLX-3175  
Colour Laser Multifunction  
Copier/printer/scanner

- 17ppm Mono &  
4ppm Colour
- 2400x600 DPI  
Printing
- USB 2.0



|              |              |
|--------------|--------------|
| <b>TOTAL</b> | <b>\$319</b> |
|--------------|--------------|

WebCode: SSP3175

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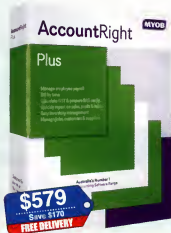
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Ideal for small businesses

The smarter way to manage your business and inventory requirements.

- Calculate your GST & BAS
- Google maps Integration
- Manage jobs, customers & suppliers
- Business performance reports
- Perfect for sole traders
- Estimates (quotes) & job costing.

WebCode: MYB0107



### MYOB AccountRight Plus 19

Great for expanding businesses

MYOB AccountRight Plus is business, payroll and time billing software.

- See how your business is performing
- Bill for your time
- Enhanced help centre
- Sales invoices & manage debtors
- Pay & track expenses
- Manage creditors
- Company Data Auditor

WebCode: MYB0108



### MYOB AccountRight Premier 19

Powerful multi-user software

Process foreign currency transactions, streamline payroll and analyse your business in greater detail.

- Integrated payroll management
- Business Insights Dashboard
- Generate comprehensive reports
- Sales invoices & manage debtors
- Integrate with Microsoft Office
- Complete inventory management
- Transaction management

WebCode: MYB0110



### MYOB AccountRight Standard 19 Upgrade

Break into 2010 with extra features and up-to-date BAS & GST rates

WebCode: MYB0111



**TOTAL \$316**  
SAVE \$79



### QuickBooks Accounting 2010/11 + Advantage

Easy to set-up, learn and use

A powerful software package designed for small businesses that require financial and inventory tracking but not payroll management.

WebCode: QUI0199



### QuickBooks Plus 2010/11 + Advantage

Comprehensive payroll management

Timesaving features and powerful functionality make QuickBooks Plus a must for efficiency-minded businesses that manage inventory and track payroll.

WebCode: QUI0200



### QuickBooks Pro 2010/11 + Advantage

Monitor business performance

Prepares quotes and estimates, integrates seamlessly with Microsoft Office and has advanced tools to analyse key projects.

WebCode: QUI0201



### QuickBooks Premier 2010/11 + Advantage

3 License multi user

Incorporate tools and reports to meet your specialised needs, fast multi-user capability and performance increase business efficiency.

WebCode: QUI0202



### QuickBooks EasyStart 2010/11

The simplest way to manage sales, expenses and customers  
Designed for first-time users needing a simple accounting solution.

WebCode: QUI0198

### Quicken Personal Plus 2010

Manage your investments



WebCode: QUI0203

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SAVE \$38

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Point of sale solution

If you are opening your store for the first time, or upgrading from a cash register, then Reckon's Retail Starter Kit is what you need.

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- Includes: Receipt Printer, Cash Drawer, & Barcode Scanner

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Great for families, excellent for students



Our Price  
**\$108**  
Save \$30

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WebCode: MSA6101

Microsoft Office Small Business 2007  
Tools to help small businesses work more efficiently



Our Price  
**\$228**  
Save \$521

| PRICE CHECKER |       |
|---------------|-------|
| Dick Smith    | \$299 |
| Harvey Norman | \$298 |

WebCode: MSA6105

Microsoft Office Professional 2007  
Easy-to-use suite of productivity and information management software!



Our Price  
**\$714**  
Save \$134

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|---------------|-------|
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WebCode: MSA6108



## Windows 7

Everything you need for business and home

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|------------------------|---------|--------------|------------------|
| Home Premium           | MSA5131 | <b>\$265</b> | <b>SAVE \$34</b> |
| Home Premium - Upgrade | MSA5132 | <b>\$165</b> | <b>SAVE \$30</b> |
| Professional           | MSA5134 | <b>\$379</b> | <b>SAVE \$70</b> |
| Professional - Upgrade | MSA5135 | <b>\$339</b> | <b>SAVE \$60</b> |
| Ultimate               | MSA5128 | <b>\$389</b> | <b>SAVE \$30</b> |
| Ultimate - Upgrade     | MSA5129 | <b>\$339</b> | <b>SAVE \$90</b> |

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Voice recognition, speech-to-text software, perfect for dictation.

Small business and advanced PC users now have the power to create documents, reports and emails three times faster than most people type — with up to 99% accuracy. Surf the Web by voice or dictate and edit in Microsoft Word and Excel, Corel WordPerfect, and most other Windows-based applications.



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C250

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WebCode: NUA0187



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## PDF Converter Professional 6

Complete PDF solution designed specifically for the business user

You'll be able to access valuable information trapped in a digital or scanned document

WebCode: NUA0156

**Nuance OmniPage 17**  
Never retype or reformat a document ever again!

- Increased word accuracy
- Faster launch times
- One-click toolbar in Microsoft Office
- Asian language recognition



WebCode: NUA0112

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**SAVE \$58**



## Adobe Acrobat 9 Series for Windows

Protect your documents with PDF

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|----------------------|---------|--------------|-------------------|
| Acrobat Standard     | ALD9649 | <b>\$399</b> | <b>SAVE \$174</b> |
| Acrobat Pro          | ALD9652 | <b>\$594</b> | <b>SAVE \$264</b> |
| Acrobat Pro Student  | ADS5023 | <b>\$145</b> | <b>SAVE \$20</b>  |
| Acrobat Pro Extended | ALD9650 | <b>\$990</b> | <b>SAVE \$344</b> |



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SAVE **\$37**



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The #1 selling digital media suite  
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• Burn and copy discs directly on your desktop.

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The best way to get pro-quality results in burning, video and photo projects.

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WebCode: ROX5010



**Symantec Norton Ghost 15**  
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WebCode: SYM8893



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Easy and fast disk imaging  
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Essential protection for your business

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Run the most demanding MAC and Windows applications side-by-side at maximum speeds without rebooting

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All your photo & video editing software in one



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WebCode: C0R9228

**Corel Paintshop Photo Pro X3**  
Simple to use photo-editing software

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WebCode: C0R9222



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The most sophisticated, most widely used mind mapping solution on the planet!  
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WebCode: MIN5042



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Adobe Elements software makes it easy to create incredible movies & photos. Get started quickly with automated moviemaking options, add knockout visuals and sound, and share your creations everywhere.



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WebCode: SIB0005

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Create a truly professional looking web site on your own. Spectacular VISTA-style graphic effects are just one click away: drop shadows, semi transparent areas, banners, frames, titles, buttons, etc. Templates can be colour-matched to your logo or company colours.  
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No programming required!  
Add visual effects, media content, photos, forums & blogs.



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|------------------------|---------|----------|
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| 10 x 6" - Wired Hotkey | BUN0094 | \$98     |
| 12 x 9" - Wired        | LPZ0002 | \$149.95 |



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Design and shape the world around you with the powerful, flexible features found in AutoCAD software, one of the world's leading 2D and 3D design applications. Help speed documentation, share ideas seamlessly, and explore concepts more intuitively in 3D.

WebCode: AUT0282



### Autodesk 3ds Max Design 2011

3D modelling, and animation solution software

A complete version of the award-winning Autodesk 3ds Max software – specifically tailored for architects, designers, engineers, and visualisation specialists.

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### Autodesk Subscription Value

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WebCode: AUT0267



### Autodesk Inventor LT 2011

Digital prototyping at its best

The AutoCAD Inventor LT Suite delivers Autodesk Inventor LT and AutoCAD LT software at a remarkable value, offering a practical and affordable way for mechanical design professionals to start experiencing the benefits of 3D at their own pace.

WebCode: AUT0270



### Autodesk SketchBook Pro 2010

Offers industry-leading sketching tools

Autodesk SketchBook Pro is a paint and drawing application designed specifically for use with digitised pen tablets and Tablet PCs.

WebCode: AUT0203

### CorelDraw Graphics Suite X5

Professional graphic design

- Illustration, layout, tracing, photo editing and web graphics, all in one!
- Built-in learning tools, video tutorials, expert tips, online guidebook

Upgrade (C0R92228) \$249

**TOTAL \$479**

SAVE \$350



WebCode: C0R92225

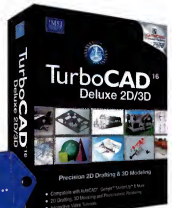
### TurboCAD 16 Deluxe 2D/3D

Unlimited design options

Hundreds of professional drafting and design tools, incredible file support, video and interactive tutorials. Recreate products, architecture, and floor plans with ease.

- 2D Drafting/Drawing
- 3D Modelling
- CAD Projects

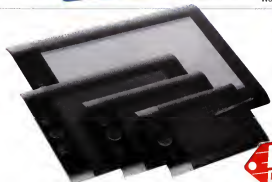
**\$159**  
Save \$40



WebCode: IMS0153

### Wacom Cintiq 21UX Graphics Tablet

High-resolution display and a dynamically adjustable stand



**FREE DELIVERY**

### Wacom Intuos4 Graphic Tablets

Precise control for graphic professionals

|                           |          |         |       |
|---------------------------|----------|---------|-------|
| Intuos4 – Small           | 4 x 6"   | WAC4400 | \$285 |
| Intuos4 – Medium          | 6 x 9"   | WAC6400 | \$419 |
| Intuos4 – Medium Wireless | 6 x 9"   | WAC6401 | \$467 |
| Intuos4 – Large           | 8 x 13"  | WAC8400 | \$569 |
| Intuos4 – XLarge          | 12 x 19" | WAC1240 | \$869 |

WebCode: WAC0120

# Adobe Creative Suite 5



Design without boundaries

## CS5 IS HERE!

### Whats New?

- Measurable time savings "An hours work with one click"
- Faster more precise and a smoother experience
- Go from print to web with one menu command
- Get client feedback strait away with CS Review Service



| Components         | Design Standard | Design Premium | Web Premium | Production Premium | Master Collection |
|--------------------|-----------------|----------------|-------------|--------------------|-------------------|
| Photoshop Extender |                 | •              | •           | •                  | •                 |
| Photoshop          | •               |                |             |                    |                   |
| Illustrator        | •               | •              | •           |                    |                   |
| InDesign           | •               | •              |             |                    |                   |
| Acrobat 9 Pro      | •               | •              | •           |                    |                   |
| Flash Catalyst     |                 |                |             | •                  |                   |
| Flash Professional |                 |                |             | •                  |                   |
| Flasher Builder    |                 |                |             | •                  |                   |
| Dreamweaver        |                 | •              | •           |                    |                   |
| Fireworks          |                 | •              |             |                    |                   |
| Contribute         |                 |                | •           |                    |                   |
| Premiere Pro       |                 |                |             | •                  |                   |
| After Effects      |                 |                |             | •                  |                   |
| Soundbooth         |                 |                |             | •                  |                   |
| OnLocation         |                 |                |             | •                  |                   |
| Encore             |                 |                |             | •                  |                   |

| Pricing         |                |                |                |                |                |
|-----------------|----------------|----------------|----------------|----------------|----------------|
| <b>Student</b>  | <b>\$260</b>   | <b>\$316</b>   | <b>\$314</b>   | <b>\$316</b>   | <b>\$473</b>   |
| WebCode - WIN   | ADS0025        | ADS0060        | ADS0062        | ADE0014        | ADS0005        |
| WebCode - MAC   | ADS0024        | ADS0060        | ADS0061        | ADE0013        | ADS0004        |
| <b>Academic</b> | <b>\$580</b>   | <b>\$771</b>   | <b>\$771</b>   | <b>\$771</b>   | <b>\$1,282</b> |
| WebCode - WIN   | ADE0008        | ADE0006        | ADE0010        | AEP0078        | ADE0012        |
| WebCode - MAC   | ADE0007        | ADE0005        | ADE0009        | AEP0077        | ADE0011        |
| <b>Upgrade</b>  | <b>\$688</b>   | <b>\$825</b>   | <b>\$825</b>   | <b>\$822</b>   | <b>\$1,236</b> |
| WebCode - WIN   | ADU0011        | ADU0007        | ADU0015        | ADU0023        | ADU0019        |
| WebCode - MAC   | ADU0009        | ADU0005        | ADU0013        | ADU0021        | ADU0017        |
| <b>Full</b>     | <b>\$1,781</b> | <b>\$2,601</b> | <b>\$2,464</b> | <b>\$2,328</b> | <b>\$3,557</b> |
| WebCode - WIN   | ADC0008        | ADC0006        | ADC0010        | ADC0014        | ADC0012        |
| WebCode - MAC   | ADC0007        | ADC0005        | ADC0009        | ADC0013        | ADC0011        |



### Adobe Photoshop Lightroom 2

Simplify photography from shoot to finish  
Enhance specific areas of a photo precisely, adjust overall color, exposure, and tonal range.

WebCode - WIN & MAC: ALD9662



### Adobe Photoshop CS5 Extended

Discover new dimensions in digital imaging  
Go beyond traditional image editing by bringing 3D elements to your 2D artwork directly within your favorite digital imaging application.

WebCode - WIN: ALD5032  
WebCode - MAC: ALD5031



### Adobe Illustrator CS5

Explore new paths with the essential vector tool  
Create distinctive designs for any project. Used by creative professionals worldwide, Adobe Illustrator CS5 software provides precision and power.

WebCode - WIN: ALD5026  
WebCode - MAC: ALD5025

**Adobe InDesign CS5**  
Design professional layouts for print and digital publishing

Precise control over typography and built-in creative tools for designing, preflighting & publishing

**TOTAL \$961** WebCode - WIN - RLDS0206  
WebCode - MAC - RLDS0207



### Adobe Dreamweaver CS5

Design, develop, and maintain standards-based websites and applications  
Empowers designers and developers to build standards-based websites with confidence.

WebCode - WIN: ADC5020  
WebCode - MAC: ADC5019



### Adobe Premiere Pro CS5

Accelerate production with the new Adobe Mercury Playback Engine  
High-performance video production solution that enables you to work dramatically faster thanks to the 64-bit, GPU-accelerated Mercury Playback Engine.

WebCode - WIN: ADC5002  
WebCode - MAC: ADC5001



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# Microsoft® Visual Studio® 2010



## Microsoft Visual Studio 2010

Each edition of Microsoft Visual Studio 2010 was built with the specific needs of individual developers and development teams in mind.

Learn which edition is right for you.



### Microsoft Visual Studio 2010 Professional

The essential tool for individuals performing basic development tasks. Visual Studio 2010 Professional simplifies the creation, debugging, and deployment of applications on a variety of platforms including SharePoint and the Cloud. It also comes with integrated support for test-driven development, as well as debugging tools that help ensure high-quality solutions.

Full (MSS10085) **\$1187**  
Upgrade (MSS10087) **\$807**



### Microsoft Visual Studio 2010 Premium

A complete toolset that simplifies application development for individuals or teams that deliver scalable, high-quality applications. Whether writing application or database code, building databases, testing, or debugging, you can increase your productivity using powerful tools that work the way you work.

MSDN (MSS10078) **\$8176**  
Renewal MSDN (MSS10079) **\$3438**



### Microsoft Visual Studio 2010 Ultimate

The comprehensive suite of application lifecycle management tools for teams to ensure quality results, from design to deployment. Whether you're creating new solutions or enhancing existing applications, Visual Studio 2010 Ultimate lets you bring your vision to life targeting an increasing number of platforms and technologies — including cloud and parallel computing.

MSDN (MSS10094) **\$17857**  
Renewal MSDN (MSS10095) **\$5713**

## FileMaker Pro 11

Tackle any task on Windows, MAC, and the web

FileMaker Pro is the leading easy-to-use database software that helps you manage people, projects, assets, and more — the easy way.

- New! FileMaker Charts
- New! Quick Reports
- New! Recurring Import



WebCode: FIL2514  
**TOTAL \$463**  
SAVE \$36

## Bento 3



### Bento 3 for MAC

See, secure and share information like never before!

Organize contacts, track projects, plan events and more - all in one place and more efficiently with Bento 3.

WebCode: FIL2018



### FileMaker Server 11

Server software for database management

Fast, reliable, easy-to-manage server software for groups of FileMaker Pro users that lets you securely share your databases over a network or on the web.

WebCode: WIN/MAC: FIL2515



**\$189**  
Save \$260  
HOT PRICE

### Canon PIXMA MP560 All-in-One Inkjet Printer

- Wireless-Ready multifunction inkjet
- 9600 x 2400 dpi printing
- 5 Colour ink tanks
- 2.0" TFT screen

|                 |              |
|-----------------|--------------|
| WebCode: CNN005 |              |
| Black           | CAN7000 \$18 |
| Grey            | CAN7004 \$18 |
| Photo Black     | CNN0022 \$27 |
| Cyan            | CAN7003 \$18 |
| Magenta         | CAN7002 \$18 |
| Yellow          | CAN7001 \$18 |



**\$149**  
Save \$49

### Lexmark S405 All-in-One Inkjet

- Print, Fax, Scan, Copy
- 33ppm Mono, 30ppm colour
- Up to 4800 x 2400 dpi
- Wireless 802.11 b/g
- Scan to email

|                 |              |
|-----------------|--------------|
| WebCode: LEXS40 |              |
| Black #100      | LEX1101 \$29 |
| Colour #101     | LEX1111 \$38 |



**\$339**  
Save \$209

### Canon PIXMA iP100 Portable Inkjet Printer

- Portable printing solution
- 20ppm Mono, 14ppm Colour
- 9600 x 2400 DPI
- USB, Infrared

|                 |              |
|-----------------|--------------|
| WebCode: CAN073 |              |
| Black PGI-35    | CAN8104 \$15 |
| Colour CLI-36   | CAN8105 \$32 |





### Lexmark Pro805

3-in-1 Inkjet  
Print, Scan, Copy

33ppm Mono, 30ppm colour  
Up to 4800 x 2400 dpi  
Wireless 802.11 b/g/n  
3 Year on-site warranty

WebCode: LEXP108

|             |         |        |
|-------------|---------|--------|
| Black #100  | LEX1108 | \$7.60 |
| Colour #100 | LEX1111 | \$38   |



**\$66**

Save \$65

### Samsung ML-1640

Mono Laser  
Low cost per page!

- 12ppm Mono
- 1200 x 600 DPI
- Parallel, USB
- Memory 8MB

WebCode: SAM1640

|            |         |       |
|------------|---------|-------|
| Black 1.5K | SAM1641 | \$108 |
|------------|---------|-------|



**\$319**

HOT PRICE

### Samsung CLX-3175

Colour Laser Multifunction

- Copier / printer / scanner
- 17ppm Mono & 4ppm Colour
- 2400x600 DPI Printing
- USB 2.0

WebCode: SSP3175

|            |         |      |
|------------|---------|------|
| 1.5K Black | SAM6564 | \$76 |
| 1K Cyan    | SAM6565 | \$65 |
| 1K Magenta | SAM6566 | \$64 |
| 1K Yellow  | SAM6567 | \$64 |



**\$429**

Save \$340

### Samsung CLP-620ND

Colour Laser  
Efficient and sharp detail

- 20ppm Colour & Mono
- 9600x600 DPI Printing
- USB 2.0, Ethernet

WebCode: SAM0620

|              |         |       |
|--------------|---------|-------|
| 5.5K Black   | SAM0621 | \$129 |
| 5.5K Cyan    | SAM0622 | \$152 |
| 5.5K Magenta | SAM0623 | \$152 |
| 5.5K Yellow  | SAM0624 | \$152 |



### Lexmark Pro905

All-in-One Inkjet  
Print, Fax, Scan, Copy

33ppm Mono, 30ppm colour  
Up to 4800 x 2400 dpi  
Wireless 802.11 b/g/n  
Web enabled 4.3" touch LCD  
Print from your phone

WebCode: LEXP905

|             |         |        |
|-------------|---------|--------|
| Black #100  | LEX1108 | \$7.60 |
| Colour #100 | LEX1111 | \$38   |

### Samsung CLX-6210FX

Colour Multifunction  
Fax/copier/printer  
scanner

- 20ppm Mono & Colour
- 65,000 Monthly duty cycle
- USB 2.0, Ethernet

**TOTAL \$639**

SAVE \$568

WebCode: SAM6210

|            |         |       |
|------------|---------|-------|
| 5K Black   | SAM6361 | \$165 |
| 5K Cyan    | SAM6362 | \$165 |
| 5K Magenta | SAM6363 | \$165 |
| 5K Yellow  | SAM6364 | \$165 |



**\$492**

After 15% Cashback

Save \$307

### Fuji Xerox DocuPrint C1190

Colour Multifunction

- Print / Copy / Scan / Fax
- Resolution 600 x 600 DPI
- 12ppm Colour / 16ppm Mono
- PC & MAC Compatible
- USB 2.0, Ethernet

\*You pay \$578.82

WebCode: FXP1190

|            |         |       |
|------------|---------|-------|
| 3K Black   | FXP1193 | \$106 |
| 3K Cyan    | FXP1194 | \$175 |
| 3K Magenta | FXP1195 | \$175 |
| 3K Yellow  | FXP1196 | \$175 |



**\$1199**

Save \$396

### Epson Stylus Photo R2880 A3 Inkjet Printer

Individual Ink Cartridges  
9ppm Colour & Mono  
5760x1440dpi Resolution  
USB 2.0 Connectivity

WebCode: EPI2880

|                 |         |           |
|-----------------|---------|-----------|
| 495 Black       | EPA6890 | \$21      |
| 8 Other Colours |         | \$21 each |



**\$607**

After 15% Cashback

Save \$886

### Fuji Xerox DocuPrint C2200

Colour Laser

- Print documents with ease
- 25ppm Mono & Colour
- 256MB RAM
- USB 2.0, Ethernet

\*You pay \$714.12

WebCode: FXP2201

|            |         |       |
|------------|---------|-------|
| 4K Black   | FXP2208 | \$176 |
| 4K Cyan    | FXP2209 | \$217 |
| 4K Magenta | FXP2210 | \$217 |
| 4K Yellow  | FXP2211 | \$217 |



**\$1527**

After 15% Cashback

Save \$886

### Fuji Xerox Phaser 8560DN

Colour Laser

- Efficient solid ink technology
- 30ppm Colour & Mono
- Built-in Duplexer
- USB 2.0, Ethernet

\*You pay \$1796.47

WebCode: FXP0562

|              |         |       |
|--------------|---------|-------|
| 3.4K Black   | FXP0569 | \$71  |
| 3.4K Cyan    | FXP0570 | \$126 |
| 3.4K Magenta | FXP0571 | \$126 |
| 3.4K Yellow  | FXP0572 | \$126 |



**\$1796**

After 15% Cashback

Save \$1229

### Fuji Xerox DocuPrint C3055DX A3 Colour Laser

World's smallest A3 colour laser

- 35ppm Mono & 8ppm Colour
- 600 x 600 DPI
- USB 2.0, Ethernet, Duplex

\*You pay \$2112.94

WebCode: FXP3055

|              |         |       |
|--------------|---------|-------|
| 6.5K Black   | FXP3063 | \$72  |
| 6.5K Cyan    | FXP3064 | \$308 |
| 6.5K Magenta | FXP3065 | \$308 |
| 6.5K Yellow  | FXP3066 | \$308 |



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**\$18.80**

### Not Just an FM Transmitter

Listen to your MP3 player through your car stereo

- MP3 FM Car modulator
- FM transmitter - transmits the MP3 signal to your car radio

WebCode: HAV0002



**\$29.95**

### B-Speech

#### Bluetooth Headset

Remarkable design, high quality and comfortable to wear

- Only 7.5 grams
- 3x Rubber ear plug included
- 10m Range

WebCode: BSP0003



**\$37.95**

### B-Speech Bluetooth Handsfree Carkit

Save yourself a traffic infringement with this product Built with form and function in mind, this little gem does not require any cables and can be mounted on the sunshade in your car.

WebCode: BSP0002



**\$34.95**

Save \$35

### AV Labs USB HD Digital TV Tuner

Watch TV on your computer! You can enjoy watching or recording digital TV on your computer or laptop anywhere, anytime!

WebCode: AVL10



**\$99**

Save \$50

### Olin Mobile Note Taker

Portable handwriting capture device

Take digital notes while being away from your computer in meetings, classroom and at home (device is not connected) No wires required

WebCode: OLI0011



**\$99**

### Greenpoint USB Digital Microscope (25x-400x)

Great for hobbyists and curious young minds

Capture higher resolution images and video then display them on your PC

WebCode: GPE0008



**\$258**

Save \$90

### LaCie 1TB USB2.0 LaCinema Classic HD

The media player that supports 1080p playback through HDMI It's compatible with all the most popular video formats on the market.

WebCode: LAC9890



**\$238**

Save \$61

### HD HomeRun Network TV Tuner

One TV tuner for all your PC's Watch & record digital TV or record two channels at same time across multiple computers.

WebCode: LAK001



**\$117**

Save \$62

**NEW!**

### Midite Digital Touch Pen DP-200

Turn your monitor into a tablet!

- Works on any surface!
- Ideal for presentations
- Navigate, Annotate, and Dictate!

WebCode: OTH0009



**\$49.80**

### SVP Digital Slide Scanner

Convert all your 35mm negatives and slides to digital images

- 3 Mega Pixel
- USB 2.0 connection

WebCode: BUN0082



**\$99.95**

Save \$50

### Otek Digital Slide Scanner with 2.4" Screen

Stand alone slide scanner

- 5 Megapixel
- Instant Preview and high-speed one-touch scanning (0.5 sec.)

WebCode: OTE0004



**\$128**

### SVP Digital Film/Slide Scanner

Archive all your favourite memories Watch & record digital TV or record two channels at same time across multiple computers.

WebCode: SVF000



**\$199**

Save \$50

### Canon CanoScan Lite 700F Scanner

Slimline document and photo scanner

- 9600x9600 dpi
- Single frame slide scanning
- One cable setup

WebCode: CNN0038



**\$298**

Save \$61

### Canon CanoScan 8800F Scanner

High speed document / Photo Slide scanner

- 4800x9600 dpi
- Continuous scanning of up to 12 slides
- Scan to PDF

WebCode: CAN5015



**\$550**

FREE DELIVERY

### Canon P-150 High Speed Portable Document Scanner

Ideal in the office or on the road

- Scanning up to 15ppm duplex
- USB Powered
- 600dpi

WebCode: CNN0074



**\$699**

Save \$250

### Epson V700 Scanner

Advanced film, document & photo scanning solution

- 6400 dpi x 9600 dpi
- FireWire & USB connectivity
- Windows & MAC compatible
- 48-bit colour

WebCode: EPS07



## Digital Photo Frames

Showcase your favourite memories

|  |         |         |
|--|---------|---------|
| 7" Greenpoint Frame - Black (480 X 234)    | GPE0003 | \$39.95 |
| 12.1" Greenpoint Frame - Black (800 X 600) | GPE0004 | \$124   |
| 15" Shintaro Frame - Black (1024 X 768)    | BUN0057 | \$205   |



## DJ-Tech DJ Mouse MP3 Mixing Kit

Real-time mixing and scratching on MP3's  
We are proud to bring you the first DJ Mouse, fully designed and made for all DJ applications

WebCode: DJT0002



## DVD Video Maker

Convert your old home movies to DVD

Transferring all your VHS, & Camcorder tapes to a DVD or Digital format has never been easier!

WebCode: AVL1022



## Triple Car Adapter with USB Port

Plug in up to 4 devices at the same time when you're on the go!  
• Works in cars or trucks 12v / 24v  
• Includes LED power indicator.

WebCode: RDM0001



## Greenpoint 175w Inverter with USB Outlet

Mains power from your cigarette lighter socket

Charge and power your electronics on the road, in your car, 90.5% surge capacity to start high loads

WebCode: GPE0005

## Akai USB Turntable for PC & Mac

Convert your vinyl records to digital with ease!

- USB & Analogue Connectivity for PC and MAC
- 256mm Turntable Platter



WebCode: AKH0001

**TOTAL \$88**

SAVE \$41



## DJ Tech Cassette Tape to MP3 Encoder

- Turn your cassette tapes into MP3s
- Store your cassette tapes on your PC
- Voice activated system cassette deck with Two Speed Play.

WebCode: DJT0001

## Greenpoint 4GB Credit Card MP3 Player

Carry your favourite MP3's in your wallet!

- Size of a Credit Card!
- Holds up to 2000 MP3's
- 2.5mm Jack headphones
- USB Plug'n'Play
- Up to 8 hour battery life on each charge



**\$24.20**

**HOT PRICE**

WebCode: GPE0001

## Laser HD PVR Set Top Box

Receives all the latest Free view digital channels

- PVR via USB or HDD (500GB or under)
- 7 Day Electronic Program Guide

WebCode: LAS9997



**\$79**

**Save \$50**

## DAB+ FM Digital Radio

Good bye analogue, hello digital!

DAB+ & FM tuner with Auto channel scan. Up to 10 preset stations.

WebCode: AKA0005



**\$69.70**

**NEW**



**Canon Digital IXUS 120 IS**  
the thinnest wide-angle IXUS ever  
12.1 Megapixels  
4x Optical zoom  
2.7" LCD II display  
28mm Wide-angle lens

WebCode: CAN4047



## Canon PowerShot S90 Digital Still Camera

You're only one click away from the perfect shot

- 10 Megapixels
- 28mm Wide angle lens
- 3.8x Optical zoom
- 3" LCD screen

WebCode: CAN7233



## Canon FS306 Digital Video Camera

Built-in dynamic image stabilization

- 800,000 Pixels
- SD Memory card storage
- 41x Optical zoom
- 2.7" Widescreen

WebCode: CAN8910



## Sony HDRCX110 Full HD Memory Stick Camcorder

Light and compact

- 1980x1080 Video Resolution
- 4 Megapixel Still Shot
- 10x Optical Zoom
- 2.7" Touch panel LCD

WebCode: SNY7637



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## Billion BiPAC 7404UNPX ADSL2+ Firewall Router

The router that has it all - VOIP, 3G, ADSL2+, Wireless-N

- Dual WAN interfaces for ADSL2+ and 3G connections
- High speed Internet access with ADSL2 / 2+, backward compatible with ADSL
- High-speed wireless connection up to 300Mbps data rate
- 802.11n Wireless AP
- Auto fail-over feature to ensure an always-on connection



**TOTAL \$286**

**SAVE \$193**

WebCode: BZL0040

## Billion BiPAC 7800N ADSL2+ Firewall Router + Gigabit Ethernet Switch

Recommended for the enthusiasts

Experience super fast broadband connectivity with the ADSL2+ and FTTH multi-service gateway!

- Draft-N wireless
- 4-Port gigabit switch
- Robust Firewall Built-In



WebCode: BIL004

**\$198**

Save \$251

**FREE DELIVERY**

**\$169**

Save \$93

### NETGEAR WNDR3700 Dual Band N Gigabit Router

The power you want and flexibility you need for your network

- Gigabit ethernet ports deliver ultra-fast wired connections
- 3 power and range settings reduce power up to 75%

WebCode: NTG8346

**\$95**

Save \$34

### Linksys WRT54GL Linux based Wireless-G Router

Designed specifically for hobbyists and wireless aficionados

- Eliminate the need for cables
- Compatible with Wireless-B
- Browser-based configuration utility

WebCode: LNK552



**\$495**

Save \$148

**FREE DELIVERY**

### D-Link DGS-1224T WebSmart 24-port Gigabit Switch

Create a high-speed Ethernet network with Gigabit capability

- Two combo SFP fiber connections
- Network security

WebCode: DLK9225



**\$198**

Save \$71

### NETGEAR Powerline AV Ethernet Adapter Kit

Turn any power outlet into high speed network connection

- Fast enough to stream HD video
- Plug and Play - no setup required
- Connect easily to TiVo, Consoles or TVs

WebCode: NTG8167



**\$104**

Save \$75

**NEW**

### NETGEAR EVA2000 Digital Entertainer Live

Play movies, video, music and photos

- AVI, DivX, MPEG, Xvid
- Supports UPnP AV Servers
- HDMI Connectivity

WebCode: NTG8386



**\$238**

Save \$161

**NEW**

### NETGEAR MS2110 NAS Server With 1TB HDD

2 bay hot swap

- 10/100/1000 Ethernet
- Supports SATA HDD's
- USB 2.0 Port

WebCode: NTG863



**\$170**

Save \$59

### D-Link DCS-920 Wireless G IP camera

Wireless connectivity for flexible placement

- 1 Lux light sensitivity
- Remotely monitor your home or office over the internet

WebCode: DLK5920



**\$44**

**NEW**

### Networking USB 2.0 Server

Share USB devices on your network

- USB 2.0, 1.1 Supported
- Windows 2000, XP, Vista compatible
- 10/100 Mbps
- Share printers & USB drives

WebCode: WIN2000



**\$628**

Save \$121

**HOT PRICE**

### QNAP TS-410 4-Bay NAS Server

Low power consumption & quiet operation

- Marvell 6281 800MHz processor
- RAID 0, 1, 5, 6 JBOD
- Surveillance station built-in
- Gigabit ethernet

WebCode: QNA0035



**\$1069**

Save \$160

**HOT PRICE**

### QNAP TS-439 Pro II 4-Bay NAS Server

Superior Performance with iSCSI

- 1.6GHz Intel processor
- RAID 0, 1, 5, 6, 5+ Spare, JBOD
- Surveillance station built-in
- Gigabit ethernet

WebCode: QNA0040

## Seagate GoFlex 2.5" 1TB Portable HDD

Powerful inside, stunning outside

the ultimate portable storage solution with easy access to all your stuff. sleek, ultra-thin design that is as stylish as it is striking. Connects via USB 2.0 5400 RPM Small form factor



**\$248**

WebCode: SGA4303

## Verbatim 2.5" 500GB Mobile HDD

500GB in the palm of your hand

Featuring USB turbo speed improving transfer speeds by up to 25% via the USB 2.0 interface. Palm sized and lightweight, the Mobile Hard Drive is easy to carry with a light weight and an ultra compact size making it remarkably smaller than other 2.5" drives on offer.



**\$109**  
Save \$50

WebCode: VBM6288

## 1TB Western Digital HDD With ASTONE Enclosure

The external HDD that stands out from the crowd

Stylish meshed metallic case provides best protection from overheating and reduces electro-magnetic interference External SATA (eSATA) enables up to 3G Bits/Sec data transfer rate 64MB Cache

TB (AST0037) \$209

**\$119.80**



WebCode: AST0034

**\$189**  
Save \$90  
NOT PRICE

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| MS Pro Duo   |
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| Ultra II MS Pro Duo |
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